



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

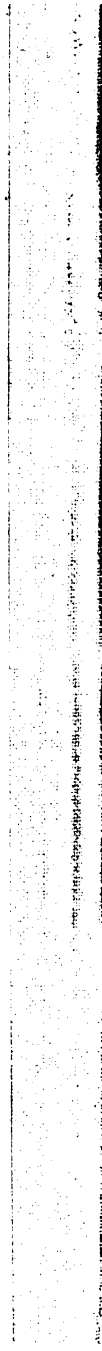
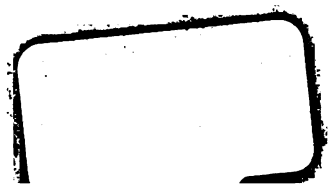
Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

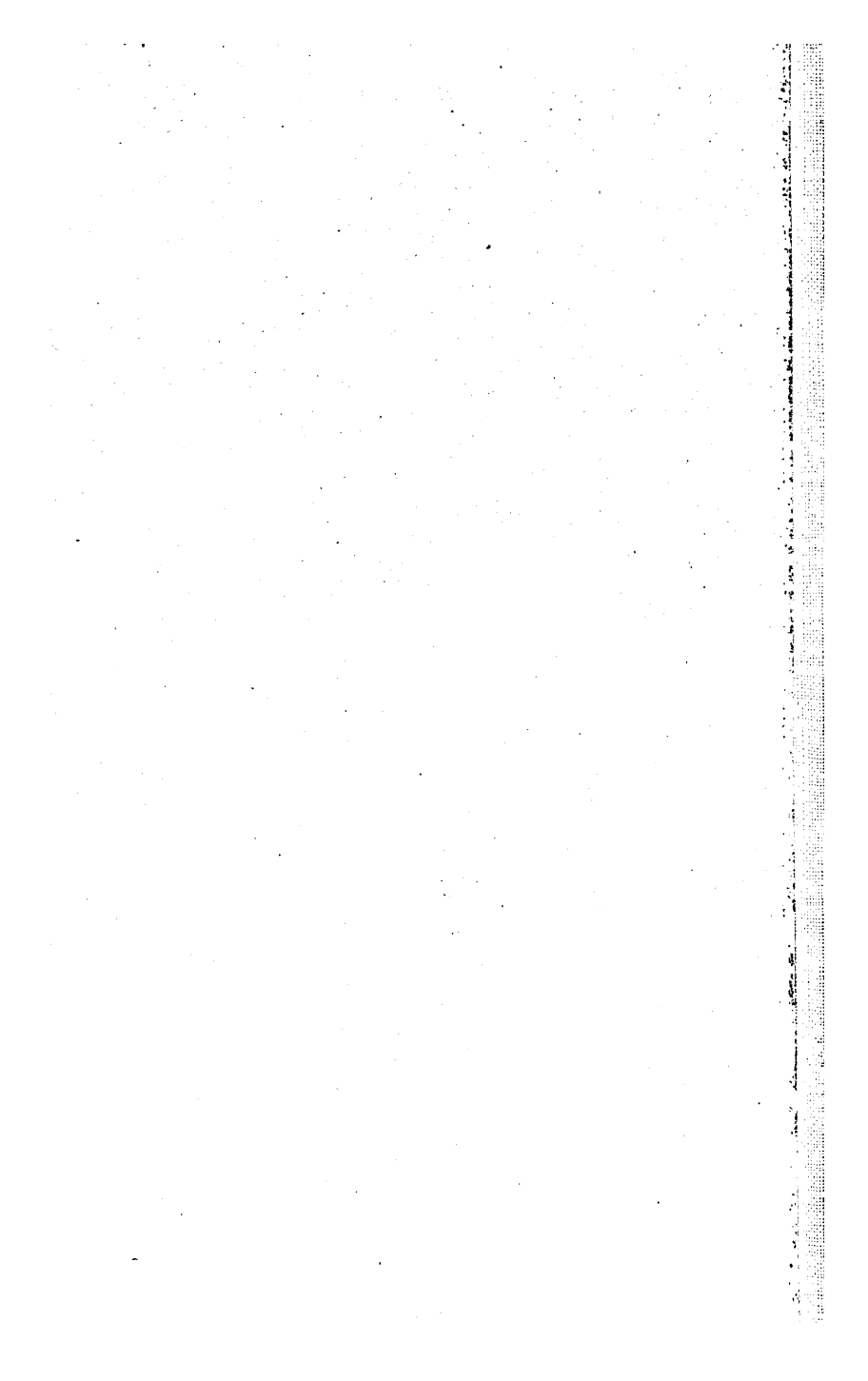
- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

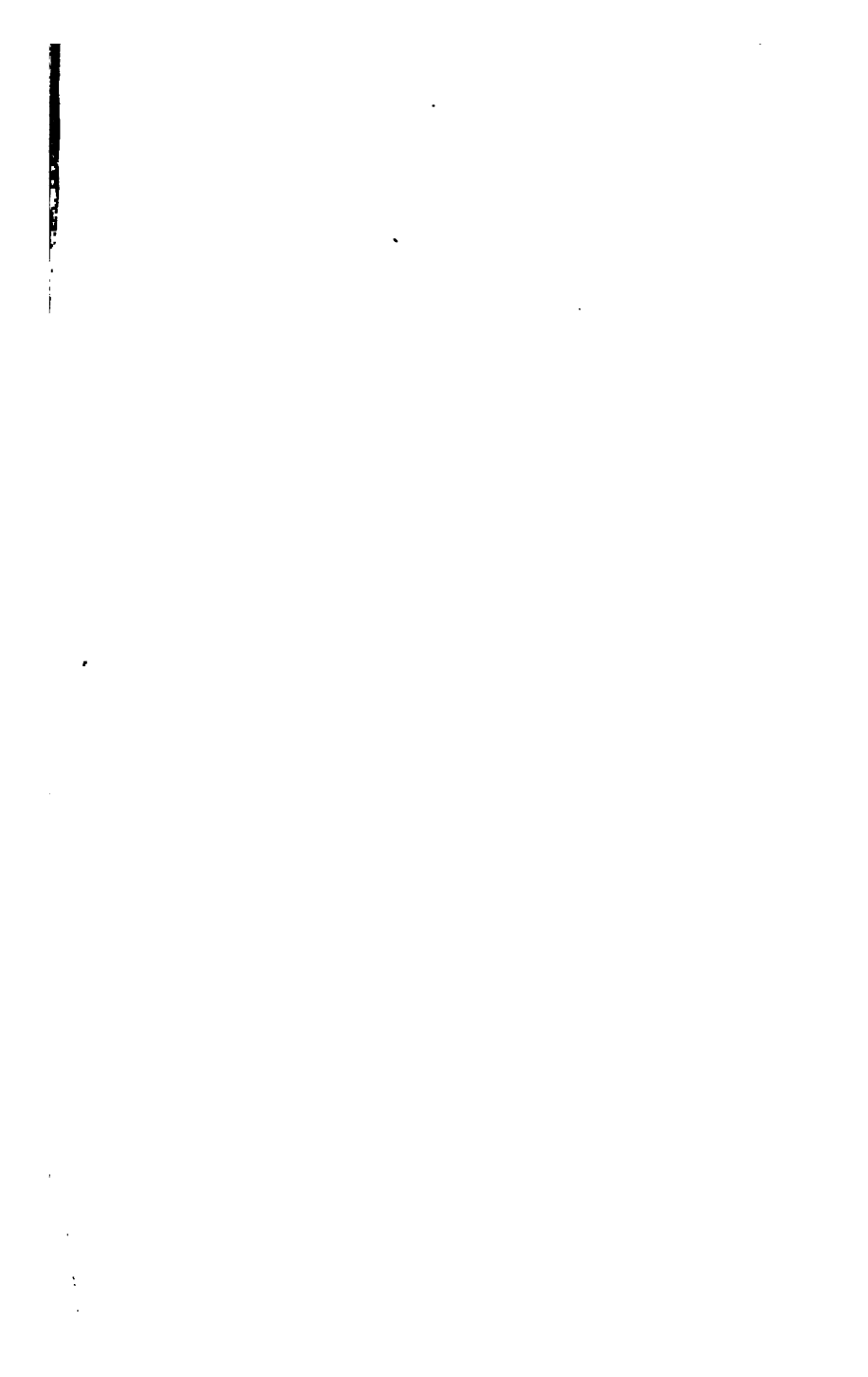
About Google Book Search

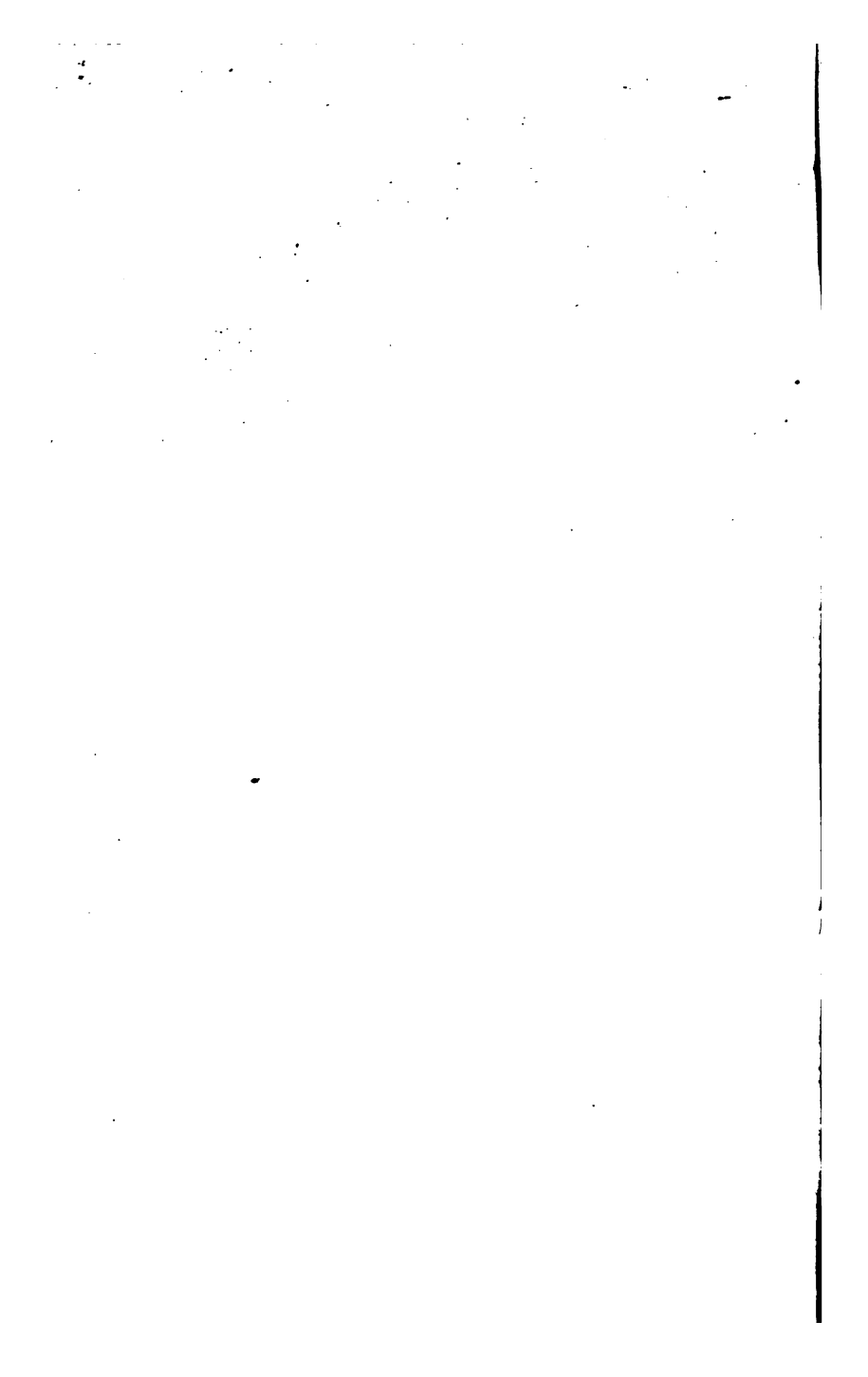
Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>



FC
Wynne

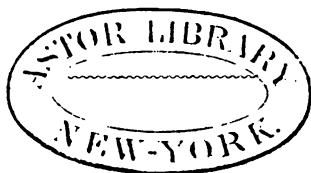






LIVES
OF
EMINENT
LITERARY AND SCIENTIFIC MEN
OF AMERICA.

BY
JAMES WYNNE, M. D.



NEW YORK:
D. APPLETON & COMPANY,
No. 200 BROADWAY.
1850.

Entered according to the Act of Congress, in the year 1850, by

JAMES WYNNE,

In the Clerk's Office of the District Court of Maryland.

WYNNE
1851
1851

TO

JOSEPH HENRY, L. L. D.,

SECRETARY OF THE SMITHSONIAN INSTITUTION,

THIS WORK IS RESPECTFULLY INSCRIBED,

AS A TESTIMONY OF HIS EMINENT SCIENTIFIC ATTAIN-
MENTS, AND A TOKEN OF THE PERSONAL

REGARD OF

THE AUTHOR.

P R E F A C E.

MUCH is said about the development of a purely national literature, but we confess that we have little expectation of realizing its speedy accomplishment. So long as England and America speak the same language, and so long as the human mind is progressive in each, so long will they possess a literature in common, and whether willing to admit the truth or not, so long will they derive mutual advantage from the labors of either. And why should it not be thus? The gentle strains of Wordsworth fall as sweetly upon the ear from the quiet banks of the Delaware, as amid the mountains and lakes of his own Westmoreland, and Longfellow's *Voices of the Night* breathe as melodious and plaintive a tone, when echoed along the cliffs of Devon, as from the rock bound shores of New England.

Literature is the reflex of society. It does not fashion, but is fashioned by it,—it is the consequence and not the cause. Its materials are developed, its forms moulded, and its authors supplied from its ample resources, to which it gives a coloring in return. Occasionally some transcendent genius bursts upon the world in advance of his time, and lives neglected by his own, to be worshipped by succeeding ages; but this is an exception, not an example. The literature of a country is usually the fairest criterion of its tastes, opinions, character and refinement, and judged by this standard, the hasty observer might question the advances of American society, because he sees nothing in its literature materially differing from that of the English. Now this only proves the intimate relations subsisting between them, which neither time nor distance, nor circumstance can entirely obliterate.

They are both the offspring of a common ancestry, speak a common language, and boast a COMMON LITERATURE. The American feels, and justly too, as much conscious pride in the dazzling genius of Shakspeare and Milton, or the gigantic reasoning powers of Bacon and Locke, as the native of England. They are among the brilliant gems that sparkle in the coronet of their common literature, and cannot be circumscribed either in their influence or associations, within the narrow limits of the sea girt island which gave them birth.

The beneficial results of the labors of Addison in re-modelling the English prose from the stiff and pedantic style of the previous age, into that which at the present moment is admired on account of its classical purity and elegance, or those of Pope, the witty successor of Dryden, in chastening its poetry by means of his flowing and graceful, yet sarcastic versification, are not confined to England, but are equally appreciated and enjoyed by the

younger member of the same family, upon the American side of the Atlantic. They are substantial contributions to English literature, which is as much the property of America as of the British islands, and should be arrogated exclusively by neither.

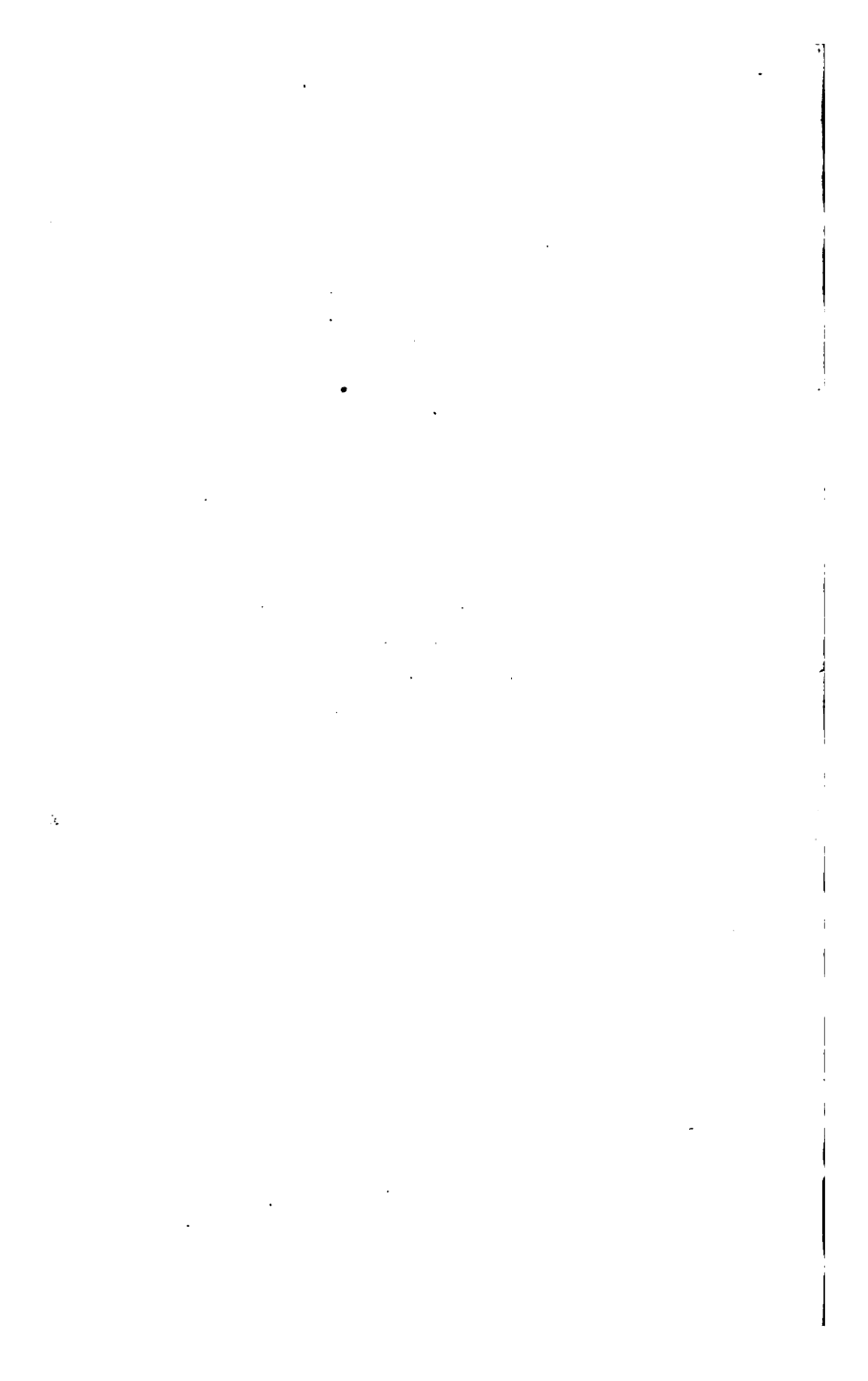
It is true, that thus far England has had the advantage of this state of things. A colonial dependence, a primeval and unfashioned state of society, a want of means to extend, or of leisure to cultivate it, were certainly not the most favorable circumstances under which to develop literary pursuits; but much of this is already changing, and if the current of society remains undisturbed, it is easy to foresee that at no distant day, the English language and the English literature will seek America and not England, for the field of its future development, because it will address itself in the former to the greatest numbers, and spread its influence over the most extensive surface. This is but the regular transmission of inheritance from parent to child, and cannot dis sever the reciprocal literary relations which always have and always will exist betwixt them; reciprocal relations which the legislators of both countries have strangely and inconsiderately overlooked. Why should he who administers to the loftiest wants of mankind be the only one whose labors are considered as unworthy of legislative protection? When every species of industrial pursuit meets with a sufficient indemnification from usurpation, by law, why should the intellectual labor of the English author in America, or of the American author in England, be considered as common property and unworthy of legislative interference?

That the human mind has suffered no deterioration in its transit across the Atlantic, and that while Newton and Barrow were making rapid advances in physical science, and Lord Kames and Reid, in the department of intellectual philosophy, America was not deficient in contributing her quota to the development of science and the elevation of English literature, the perusal of the lives of eminent men of America, feebly portrayed though they may be, will fully demonstrate.

BALTIMORE, JULY, 1850.

CONTENTS.

	PAGE.
FRANKLIN,	7
REV. JONATHAN EDWARDS,	124
FULTON,	168
CHIEF JUSTICE MARSHALL,	231
DR. BITTENHOUSE,	301
ELI WHITNEY,	332



EMINENT LITERARY AND SCIENTIFIC MEN OF AMERICA.

FRANKLIN.

THERE is no enquiry more interesting, and at the same time more instructive, than that which traces the progress of a great mind from its feeble beginnings to the period when it fills the world with its renown. Mankind are naturally curious to become acquainted with its early hopes and aspirations, and to learn what peculiar features distinguished it from other minds, and hence the charm thrown around autobiography. This charm is greatly enhanced when its pages are unsullied by that display of personal vanity, so difficult altogether to repress, and yet so injurious to the memory of its author when indulged in. It is this apparent truthfulness and absence of personal display which invest the lives of Gibbon and Hume with their remarkable fascination, and the want of these characteristics which mars Rousseau's Confessions and Byron's Letters, even more than the immoralities they so unblushingly display.

FRANKLIN fortunately left behind him an unfinished work of this class containing a sketch of his early years, which for perspicuity and unaffected simplicity has no superior and but few equals. From this we learn, that he was born in Boston,

on the 6th day of January, 1706. His father, Josiah Franklin, emigrated to America about 1682, from the small village of Ecton, in Northamptonshire, England, where the family occupied a freehold for upwards of three centuries, of about thirty acres. "This small estate," continues the autobiography, "would not have sufficed for their maintenance without the business of a smith, which had continued in the family down to my uncle's time, the eldest being always brought up to that employment, a custom which he and my father followed with regard to their eldest sons. When I searched the registers at *Ecton*, I found an account of their marriages and burials from the year 1555 only, as the registers kept did not commence previous thereto; I however learnt from it, that I was the youngest son of the youngest son for five generations back. My grandfather Thomas, who was born in 1598, lived at Ecton till he was too old to continue his business, when he retired to Banbury, in Oxfordshire, to the house of his son John, with whom my father served an apprenticeship. There my uncle died and lies buried. His eldest son Thomas lived in the house at Ecton, and left it with the land to his only daughter, who sold it to Mr. Isted, lord of the manor there."

His grandfather had four sons, viz: Thomas, John, Benjamin and Josiah. Thomas, the elder, was bred a smith, John a dyer, probably of wool, Benjamin a silk dyer, and Josiah, the father of the philosopher, after serving an apprenticeship with his elder brother John, become a tallow chandler, which business he prosecuted in Boston until his decease, obtaining from it a frugal but honest support, and the means of rearing humbly but reputably a large and worthy family of children.

The father of Benjamin Franklin married quite young, and

brought with him to America a family consisting of his wife and three children. He emigrated in company with a number of religious dissenters, to whose faith he was attached, but it does not appear that he was driven by religious zeal like many of his sect to seek an asylum in a new country, from the persecutions he had experienced in his native land. Of his father, Franklin says, that "he had an excellent constitution, was of middle stature, well set and very strong; he could draw prettily, (which from the specimens in a notebook kept by Franklin we conclude he could not,) was a little skilled in music; his voice was sonorous and agreeable, so that when he played on his violin and sung withal, as he was accustomed to do after the business of the day was over, it was extremely agreeable to hear him. He had some knowledge of mechanics, but his great excellence was his sound understanding and solid judgment."

"At his table he liked to have as often as he could some sensible friend or neighbor to converse with, and always took care to start some ingenious or useful topic for discourse, which might tend to improve the minds of his children."

Benjamin was the youngest son by a second wife, whose name was Abiah Folger, the daughter of Peter Folger, one of the earliest settlers in New England, and the author of a pamphlet on some controversial subject. Franklin was one of a very numerous family. His father had seven children by his first wife and ten by his second, of whom Benjamin remembers to have seen thirteen seated together at his father's table.

His elder brothers were all apprenticed to different trades, but Benjamin was sent to a grammar school, preparatory to

an education for the pulpit, towards which his uncle proposed to contribute by leaving him a short hand volume of the sermons of different clergymen taken by himself.

The increasing wants of his large family induced his father, in less than a year from the commencement of his studies, to alter his plan concerning his son and remove him from school, in order to make his services useful in contributing to the general maintenance of the family. He was accordingly at ten years of age made the errand boy of his father's tallow chandlery, and in this capacity was employed in carrying candles and soap to the houses of customers residing in Boston, besides performing various other offices connected with the trade, as cutting the wick for candles, and filling the moulds with tallow.

"I disliked," says he, "the trade, and had a strong inclination to go to sea, but my father declared against it; but residing near the water, I was much in it and on it; I learnt to swim well, and to manage boats, and when embarked with other boys I was commonly allowed to govern, especially in any case of difficulty; and upon other occasions I was generally the leader among the boys, and sometimes led them into scrapes, of which I will mention one, as it shows an early projecting public spirit, though not then justly conducted.

"There was a salt marsh which bounded part of the mill-pond, on the edge of which at high water we used to stand to fish for minnows; by much trampling we had made it a mere quagmire. My proposal was to build a wharf there for us to stand upon, and I showed my comrades a large heap of stones, which were intended for a new house near the

marsh, and which would very well suit our purpose. Accordingly, in the evening, when the workmen were gone home, I assembled a number of my playfellows and we worked diligently like so many emmets;—sometimes two or three to a stone, till we had brought them all to make our little wharf. The next morning the workmen were surprised at missing the stones which formed our wharf; inquiry was made after the authors of this transfer; we were discovered, complained of, and corrected by our fathers, and though I demonstrated the utility of our work, mine convinced me, that, *that which was not truly honest, could not be truly useful.*”

Franklin was from his earliest years passionately fond of books, and devoured with avidity whatever species of reading came to his hand. His father's library was unfortunately but scantily stocked, and consisted chiefly of works on the religious controversies of the day, which he read, from the bare yearning for this pastime, and probably with but little profit to himself. There were a few books in this small collection of a different character, to which Franklin has attributed some of the peculiar characteristics of his subsequent life. Among these were Plutarch's Lives and Dr. Mather's Essay on the means of doing good. This latter book was quite a favorite with him, and he imagined it had a material influence in fashioning his train of thinking, and modifying the principal events of his future life. Every individual is certainly the best judge of those causes which affect his own mind; but we cannot avoid the conclusion that Franklin owed much more to the intuitive gifts of his intellect than to any of the chance circumstances alluded to by him. It does appear to us that the associations of his early boyhood were

eminently unfavorable to the development of the philosophic reasonings which distinguished him in after life, and were even at this early age perceptible in the course of his reading as well as his youthful actions.

His invincible repugnance to his occupation, and his desire to follow the sea, increased rather than diminished, and his father deemed it prudent after the trial of one or two other kinds of business, to apprentice him to that of printing under his brother James, who had just returned from London with a press and types to establish himself in Boston. Franklin still retained his fondness for the sea, and declined for some time to enter into the contract. His objections were at last overcome by the persuasion of his parent, and he signed the indenture which bound him as an apprentice to his brother when but twelve years of age.

The new occupation he had selected, or rather which had been selected for him, provided him with the means of obtaining a more ready access to books than he had hitherto enjoyed. His acquaintance with the apprentices of booksellers, frequently obtained for him the loan of some small volume, which he was careful to return clean and at the appointed time. To what profit he turned this advantage may be judged from his own language. "Often," he remarks, "I sat up in my chamber the greatest part of the night, when the book was borrowed in the evening to be returned in the morning lest it should be found missing." What the character of this reading was, he has not told us, but from the fact that he soon after appeared as the author of some very poor verses, we are inclined to the opinion that it was rather entertaining than substantial.

The manner in which he was led to correct his style in prose writing, is not only worthy of note as illustrative of the development of his mental powers under such serious obstacles, but likewise as furnishing a lesson of perseverance worthy of imitation by those who aim to overcome early disadvantages by careful and continued attention. He appears to have had a companion named John Collins, with whom he was fond of engaging in disputation, and to whom he gave the credit of possessing a style more fluent and pleasing than his own. On one occasion their dispute was interrupted before terminated, and was afterwards continued by a series of papers on both sides. These papers fell into the hands of his father, who tallow chandler though he was, certainly possessed strong natural sense. He at once perceived the strong points and the errors in his son's composition, and without entering into the subject in dispute, took occasion to talk to him about his manner of writing; observing that though he had advantage of his antagonist in correct spelling and pointing, (which he attributed to the printing house) he fell far short in elegance of expression, in method and perspicuity, of which he convinced him by several instances. Franklin saw the justice of his remarks, and thence grew more attentive to his manner of writing, and determined to endeavor to improve in style.

"About this time," he remarks, "I met with an odd volume of the Spectator. I had never before seen any of them; I bought it, and read it over and over, and was much delighted with it. I thought the writing excellent, and wished, if possible, to imitate it. With that view I took some of the papers, and making short hints of the sentiments in

each sentence, laid them by a few days, and without looking at the book tried to complete the papers again."

In this manner he devoted each leisure hour torn from the laborious duties of his trade, to the improvement of his style, and the attainment of those elementary branches of education, now within the reach of almost every child, however humble, in most of the United States.

The advantage derived from these exercises is thus with great modesty related by himself. "By comparing my work with the original, I discovered my faults and corrected them; but I sometimes had the pleasure to fancy that in particulars of small consequence, I had been fortunate enough to improve the merit or the language, and this encouraged me to think, that I might in time, come to be a tolerable English writer, of which I was extremely ambitious."

One great merit consequent upon the perusal of Addison's writings and works of a kindred character, was the abandonment of a disputatious manner which had infused itself into his conversation and writings, and which he mainly attributed to the reading of the works on polemic divinity, found in his father's library. After the opportunities afforded by many years of observation, he pronounces it "a very bad habit, making people often extremely disagreeable in company, by the contradictions that is necessary to bring it into practice;" and adds, "persons of good sense, I have since observed, seldom fall into it." Having arrived at some proficiency in his style, he felt a great desire to ascertain its effects upon the public, and with this view, wrote an article in a disguised hand for his brother's newspaper, which was

submitted to the inspection of several gentlemen who contributed to it, and pronounced worthy of insertion.

"Hearing," says Franklin, "their conversation, and their accounts of the approbation their papers were received with, I was excited to try my hand among them; but being still a boy, and suspecting that my brother would object to printing any thing of mine in his paper, if he knew it to be mine, I contrived to disguise my hand, and writing an anonymous paper, I put it at night under the door of the printing house. It was found in the morning, and communicated to his writing friends when they called in as usual. They read it, commented on it in my hearing, and I had the exquisite pleasure of finding it had met with their approbation, and that in their different guesses at the author none were named but men of some character among us for learning and ingenuity. I suppose that I was rather lucky in my judges, and they were not really so very good as I then believed them to be.

"Encouraged, however, by this attempt, I wrote and sent in the same way to the press several other pieces, that were equally approved, and I kept my secret till all my fund of sense for such performances was exhausted, and then discovered it, when I began to be considered with a little more attention by my brother's acquaintances."

This discovery of his talents as a journal writer, exercised a very important influence over the immediate, and perhaps ultimate destiny of Franklin. The consideration he received at the hands of his brother's friends, had a tendency to upturn the strict relations his brother sought to maintain between them as master and indentured apprentice. Whilst the

master on his part manifested a peevishness and authority ill becoming a near relative and employer, Franklin, beyond doubt, arrogated somewhat more to himself than he was justly entitled to claim, by reason of the possession of his imagined superior mental qualifications. This led to frequent altercations, the infliction of occasional punishments, and the final determination of the apprentice to leave his master's employ—which his brother, by cancelling his indentures, in order to enable him to appear as the conductor of the newspaper carried on by himself, but which the Government had taken umbrage at, and ordered him to discontinue—enabled him to accomplish. Franklin, with that candor which characterizes his entire personal narration, confesses that he was not justified in this step, and styles it in true printer's phrase, "the first *errata*" of his life.

Unable to obtain employment in his native town on account of the representations made of him by his brother, and fearing lest if he attempted openly to leave, he might be prevented by his father and brother, he managed through the intervention of his friend Collins, to leave clandestinely, in a vessel bound for New York, under the pretence that he had "had an intrigue with a female of bad character," whose parents would compel him to marry her if his intended departure was discovered. At New York he met with no better success, but was told by the only printer there, at that period, that his son, who resided at Philadelphia, had recently lost his most valuable workman, and that he would doubtless employ him. Franklin accordingly left New York, and after a series of mishaps was landed at Market street wharf in Phil-

adelphia, on Sunday morning from a small boat in which he had performed the last part of his journey.

"I was," says he, "in my working dress, my best clothes coming round by sea. I was dirty from my being so long in the boat; my pockets were stuffed out with shirts and stockings, and I knew no one, nor where to look for lodgings. Fatigued with walking, rowing, and the want of sleep, I was very hungry, and my whole stock of cash consisted in a single dollar and about a shilling in copper coin, which I gave to the boatmen for my passage. At first they refused it on account of my having rowed, but I insisted on their taking it. Man is sometimes more generous when he has little money than when he has plenty, perhaps to prevent his being thought to have little. I walked towards the top of the street, gazing about, still in Market street, where I met a boy with bread. I had often made a meal of dry bread, and enquiring where he had bought it, I went immediately to the baker's he directed me to; I asked for biscuits, meaning such as we had at Boston; that sort, it seems, was not made in Philadelphia. I then asked for a three penny loaf, and was told they had none. Not knowing the different prices of bread, nor the names of the different sorts, I told him to give me three penny worth of any sort. He gave me, accordingly, three great puffy rolls. I was surprised at the quantity, but took it, and having no room in my pockets, walked off with a roll under each arm, and eating the other. Thus I went up Market street as far as Fourth street, passing by the door of Mr. Reed, my future wife's father, where she, standing at the door, saw me and thought I made, as I certainly did, a most awkward, ridiculous appearance."

There were, at this time, but two printing establishments in Philadelphia, and both were of the meagerest kind. In one of these, conducted by a man named Keimer, he obtained employment, and by a singular sort of coincidence, was lodged by his employer at the house of Mr. Reed, before whose door he had passed but a few days previous, in the grotesque manner so quaintly related by himself. His chest of clothing having arrived, he was enabled to make "a rather more respectable appearance in the eyes of Miss Reed," than when she had first chanced to see him munching his penny loaf of bread.

Among the acquaintances made by him in Philadelphia, was that of Sir William Keith, the governor of the Province, who appears to have been a kind hearted and jovial sort of personage, but excessively given in the exuberance of his fancy, to making fair promises, which he had neither the intention nor the ability to perform, although to allow him due credit, he certainly desired most cordially to see them carried into execution. While on a visit to New Castle, he had seen a letter written by Franklin to his brother-in-law, Holmes, and was so much struck with the superior ability displayed by a youth of seventeen years of age, that on his return to Philadelphia he sought him out, and treated him with great kindness and attention.

Franklin thus describes his first interview with the Governor. "Keimer and I being at work together, near the window, we saw the Governor and another gentleman (who proved to be Col. French, of New Castle, in the Province of Delaware,) finely dressed, come directly across the street to our house, and heard them at the door. Keimer ran down

immediately, thinking it a visit to him, but the Governor inquired for me, and with a condescension and politeness I had been quite unused to, made me many compliments, desired to be acquainted with me, blamed me kindly for not having made myself known to him when I first came to the place, and would have me away with him to the tavern, where he was going with Col. French, to taste, as he said, some excellent Maderia." Over his wine he proposed to Franklin, to establish himself in business, promising to lend him all his influence, and assuring him of success, as his competitors were but poor workmen. Franklin was very much pleased with the idea, but feared lest his father might object. The frank hearted Governor would listen to no such objection, and it was finally arranged that Franklin should take the first opportunity to visit his father, and obtain his consent, in which he was to be aided by a pressing letter from Sir William. In the meantime, he kept his own secret, and continued to work quietly at his trade, occasionally dining with the Governor, which he "considered a great honor, more particularly as he conversed with him in the most affable, friendly and familiar manner."

It is not at all unnatural that the acquaintance of, and friendly interchange of courtesies with, so distinguished a person as the Governor of the Province, should have tickled the fancy of the poor printer's boy, and even after old age had overtaken him and he had grown familiar with the most exalted society, and accustomed to receive the highest demonstrations of respect, we can still perceive the lurking feeling of triumph over his employer Keimer, with which he

penned the account of the interview between the Governor and himself.

Franklin's father felt flattered by the attention paid to his son by so important a person as Sir William Keith, but could not agree with him as to the propriety of establishing his son in business at his immature age, and positively refused to furnish him with the necessary means to accomplish the undertaking. He wrote a polite letter to Sir William declining his aid, and gave to his son the wholesome advice to remain closely attentive to his business until he was twenty-one years of age, by which time he might, with prudence, save money enough to set himself up, and that if he came any where near it he would help him out with the rest.

The Governor, on the receipt of the elder Franklin's letter, told Benjamin that he thought his father too prudent, and that discretion "did not always accompany years, nor was youth without it." "But," said he, "since your father will not set you up, I will." He told Franklin to give him an inventory of such things as he wanted, and promised to send to England for them, allowing Franklin to return the money when he was able.

"I presented him an inventory of a little printing house," says Franklin, "amounting by computation to about one hundred pounds sterling. He liked it, but asked me if my being on the spot in England to choose the types and see that every thing was good of the kind, might not be of some advantage; 'then,' said he, 'when there you may make acquaintance, and establish correspondences in the book-selling and stationery way.' I agreed that this might be advantageous. 'Then,' said he, 'get yourself ready to go with the Annis,'

which was the annual ship and the only one at that time passing between London and Philadelphia. But as it would be some months before the Annis sailed, I continued working with Keimer."

When the time for its sailing had nearly arrived, he sought to obtain from the Governor the letters of credit and introduction promised by him, but was put off under one pretence or another until the very moment of sailing, when the Governor sent his Secretary to Franklin to say, that the letters would meet him on board the vessel. Under these assurances Franklin went on board, and sailed for England, accompanied by a particular friend named Ralph, who had some pretensions to be a poet, and is thus noticed in Pope's Dunciad :

"Silence ye wolves while Ralph to Cynthia howls,
And makes night hideous :—answer him ye owls."

This man left behind him a wife and child, who he was at that moment deserting with the full intention of never returning to them again ; a fact afterwards communicated to Franklin, without lessening the esteem he entertained for his companion.

On arriving in the British channel, and overhauling the mail-bag, Franklin found, to the utter discomfiture of his plans, that the expected letters had never been sent, and that the promises of the Governor were only so many excuses quietly to rid himself of the performance of an obligation he found himself unable to comply with. It would appear that Sir William Keith was one of the most companionable and good feeling men in the province, and really desired two things in regard to his young companion ; first, to see "a good

printer" established in Philadelphia, and second, that that printer should be young Franklin. But he was unfortunately given to making promises which he had not the ability to execute, and his imagination was so apt to run away with his judgment, that few persons who knew him placed much confidence in what he said in the way of patronage. His credit in England, moreover, was rather less than that of Franklin's himself.

But what could have induced him to think of placing a poor youth, whose friend he professed to be, in this unpleasant situation? Franklin says, after age had cooled his resentment, that "it was a habit he had acquired; he wished to please every body, and having but little to give, he gave expectations. He was, otherwise, an ingenious, sensible man, a pretty good writer, and a good Governor for the people, though, not for his constituents, the proprietaries, whose instructions he sometimes disregarded. Several of our best laws were of his planning, and passed during his administration."

In accordance with the advice of some friends he had formed on the passage, he betook himself in these straits to his trade, and pretty soon found employment as a journeyman printer. For some time he continued to lead a free and easy sort of life with his boon companion Ralph, visiting such places of amusement as were within his reach, and trying to think, in the excitement of the great metropolis, as little of Philadelphia as possible. There was one tie, however, although not quite so indissoluble as that of Ralph's, that should have led his thoughts that way much oftener than they strayed thither. This was his young companion and faithful friend, Miss Reed, whose affections he had succeeded

in attaching to himself, but to wring her young and ardent heart by a cold and cruel neglect.

Franklin, in speaking of this little episode, has managed most adroitly to divert from himself the odium of the transaction by the cool and business-like manner in which he relates it; but he has failed to tell us of the long and anxious hours of bitter suspense endured by the loving, hoping, confiding girl, whose purest and tenderest sympathies he had managed to intertwine, in a dream of future happiness, in which he formed the most prominent object, by his forgetfulness and failure to write. Once only during his sojourn in London did he write, and then to tell her that he did not soon expect to return. It is no wonder that after the receipt of this letter, more cold and cruel than the previous neglect, she should in a fit of desperation, have yielded to the urgent entreaty of her mother, and given herself in a marriage, in which her heart refused to second the words pronounced by her lips.

In the meantime, Franklin and Ralph were living together in London, upon the wages earned by the former, and in some respects not much to the credit of either. Ralph had succeeded in becoming very intimate with a young milliner who lodged in the house with them, to whom he was in the habit of reading plays, and finally ruined her. She left the house, Ralph followed her, and they continued to live together for some time on the means procured by her business, but at last finding it inadequate to their maintenance, Ralph left London to teach a small school, under the feigned name of Franklin, recommending the girl to Franklin's care. Her connexion with Ralph had ruined her business, alienated her

friends, blasted her hopes, and caused her frequently to be in distress for money. On these occasions, she often applied to Franklin for aid, which he did not hesitate to bestow in the shape of small loans.

"I grew fond," adds he, "of her company, and being at that time under no religious restraint, and taking advantage of my importance to her, I attempted to take some liberties with her, (another *erratum*) which she repulsed with a proper degree of resentment. She wrote to Ralph, and acquainted him with my conduct, which occasioned a breach between us; and when he returned to London he let me know he considered all the obligations he had been under to me as annulled, from which I concluded that I was never to expect his repaying me the money I had lent him, or that I had advanced for him."

The great fundamental error of Franklin's life thus far, was his precocious free-thinking sentiments. He tells us, that notwithstanding the strict Puritanical notions of his parents, and the religious maxims they strove to inculcate in him, he "was scarce fifteen, when, after doubting by turns, several points as I found them disputed in the different books I read, I began to doubt of the Revelation itself." One of his chief reasons for leaving his native place, when he cut himself loose from his brother's employment, was that "his indiscreet disputations about religion began to make him pointed at with horror by good people, as an infidel or atheist."

Both in Philadelphia and London, many of his acquaintances, including Sir William Keith, were disbelievers in the Christian religion, among whom there seemed to exist a strong affinity. Whilst engaged as a journeyman printer in London, he "was

employed in composing for the second edition of Woollaston's Religion of Nature," which he attempted to refute in a small pamphlet he afterwards regretted publishing, called "a Dissertation on Liberty and Necessity, Pleasure and Pain."

Franklin says, "there were only one hundred copies printed, of which I gave a few to friends, and afterwards disliking the piece, as conceiving it might have an ill tendency, I burnt the rest, except one copy, the margin of which was filled with manuscript notes, by *Lyons*, author of the *Infallibility of Human Judgment*."

This pamphlet brought him into contact with a number of persons of high social position, but of loose morals. Among his acquaintances were Drs. Mandeville and Pemberton. The former of these gentlemen was the leader of a club that held its meetings at a pale-ale house in Cheapside, and is represented as a man of great humor and wit, but eccentric. Dr. Pemberton was a Fellow of the Royal Society, and a friend of Sir Isaac Newton's, to whom he promised to introduce Franklin, but never did. He was the author of a treatise on Chemistry as well as a "View of Sir Isaac Newton's Philosophy."

Franklin pretty soon discovered that the practical effects of his system were most pernicious to society, from which he was himself made to suffer, at the hands of Collins and Ralph, whose religious tenets he had been mainly instrumental in unsettling, and whose departure from the paths of rectitude he never fully forgave himself for. Nor was his own great intellect and high sense of moral propriety sufficient to shield him from the evil and insidious inroads of free-thinking. Nothing short of such fallacious reasoning as "that nothing

in the world could possibly be wrong," and that "vice and virtue were mere empty distinctions," could have induced him to abrogate the ties which bound him to his brother, and leave under the most disreputable imputations the hearth stone of his parents, and the home of his childhood.

In London he likewise took up his abode and shared his purse with an avowed libertine, who had deserted his helpless wife and still more helpless offspring, to lead a life of licentiousness and shame, with a poor frail creature, induced by her affection, to stray from a path of virtue to one of hopeless and abandoned misery. The same cause induced him, after the temporary abandonment of this victim by Ralph, to prove unfaithful to his friend, and cruel to the fallen child of sin, who had been thrown upon his kind offices and protection.

He afterwards "grew convinced that *truth, sincerity and integrity* in dealing between man and man, were of the utmost importance to the felicity of life;" "and," adds he "I formed written resolutions, which still remain in my journal book, to practice them ever while I lived. Revelation had indeed no weight with me as such, but I entertained an opinion, that, though certain actions might not be bad, *because* they were forbidden by it, or good *because* it commanded them, yet, probably, these actions might be forbidden because they were bad for us, or commanded because they were beneficial to us in their own natures, all the circumstances of things considered. And this persuasion, with the kind hand of Providence, or some guardian angel, or accidental favorable circumstances and situations, or all together, preserved me, through this dangerous time of youth, and the hazardous sit-

uation I was sometimes in among strangers, remote from the eye and advice of my father, free from any *wilful*, gross immorality or injustice, that might have been expected from any want of religion. I say *wilful*, because the instances I have mentioned had something of *necessity* in them, from my youth, inexperience and the knavery of others."

After a residence of about eighteen months in London, he prepared to return to Philadelphia, as a merchant's clerk, in the employ of a gentleman named Denham, whose acquaintance he had made in his outward passage. The greater proportion of his earnings, besides what he had expended in his own support, had been loaned to Ralph and his companion, so that he left England poorer than when he entered it. He sailed from Gravesend on the 23d July, 1726, and landed in Philadelphia on the 11th of the following October. His old acquaintance and employer, Keimer, appeared to be in a more thriving condition than when he left, having a larger establishment and a better supply of material; but as Franklin had relinquished his trade, as he thought forever, he became interested in the success of his new occupation, and gave but little thought to his former companions. Denham took a store on Water street, and Franklin not only became his clerk but his friend. They lived together in the most uninterrupted harmony until the following February, when Mr. Denham was seized by an attack of disease, that soon after terminated in death, leaving Franklin, who had just recovered from a very severe attack of pleurisy, once more alone in the world.

Franklin, who was now about twenty-one years of age, was induced by an offer of liberal wages, to return to his trade,

and undertake the management of Keimer's establishment, which comprised a number of poor and inexperienced workmen. Keimer and himself quarrelled in less than six months, and he left his employ, and soon after established himself in the printing business on his own account in partnership with an intemperate man named Meredith, whose father furnished one hundred pounds to enable them to purchase the necessary materials to commence business. This connexion was soon broken up by the embarrassment of their concern, and the withdrawal of Meredith. Franklin's friends now came to his aid, and loaned him what money was necessary to carry on his establishment. Keimer, in the meantime, who had started a newspaper, finding it an unprofitable concern, offered it to Franklin for a small sum, which he gladly paid, and undertook its management. His qualifications as a writer were now of great use to him. By a series of fortunate circumstances, as well, perhaps, as a sprightly manner of writing, it soon grew in public favor, and commanded a large circulation for that period. He likewise received the appointment of printer to the Assembly, by an expedient which, however just it may be in trade, looked very much like an attempt to overreach his fellow-printers. This was the reprinting of an address from the House to the Governor, which had been badly executed by the government printer, and placing one on each member's table, in order that they might see the difference. Indeed, many of the transactions connected with Franklin's early career as a printer in Philadelphia are marked by a sly and cunning dealing, of which we should have imagined maturer years and calmer reflections would have made him heartily ashamed, had he not in old

age seen fit to record them with a species of self gratulation, rather than matters to be included in his *errata*.

In tracing his humble, but successful progress into business, we have, like Franklin himself, well nigh forgotten Miss Reed, or as she now was, Mrs. Rogers. Under the influence produced by the stunning effects of Franklin's letter to her, the half bewildered girl had yielded to the solicitations of her parents, and married a man named Rogers, a potter by trade, who proved in every way unworthy of her. She soon after separated from him, and refused even to bear his name, as it was reported, that he had another wife then living.

Franklin, in the meantime, lodged with Godfrey, the inventor of Hadley's Quadrant, and soon became engaged to a young lady, a relation of Mrs. Godfrey's. This match was broken off, because the girl could not bring him a jointure sufficient to pay the debt then hanging over his printing establishment. His thoughts were now turned once more to his first love, her husband having sometime before left for the West Indies, where he was reported to have died. "I pitied," says Franklin, "poor Miss Reed's unfortunate situation, who was generally dejected, seldom cheerful, and avoided company. I considered my giddiness and inconstancy when in London, as in a great degree, the cause of her unhappiness; though the mother was good enough to think the fault more her own than mine, as she had prevented our marrying before I went thither, and persuaded the other match in my absence. Our mutual affection was revived, but there were now great objections to our union; that match was indeed looked upon as invalid, a preceding wife being said to be living in England, but

this could not easily be proved, because of the distance, &c., and though there was a report of his death, it was not certain. Then, though it should be true, he had left many debts which his successor might be called upon to pay; we ventured, however, over all these difficulties, and I took her to wife, September 1, 1730. None of the inconveniencies happened that we apprehended. She proved a good and faithful helpmate; assisted me much by attending to the shop; we throve together, and ever mutually endeavored to make each other happy. Thus I corrected that great *erratum*, as well as I could."

Franklin sat up his married establishment on a very economical scale, and lived in the most frugal manner. He "kept no idle servants," but probably imposed all the menial labor of their slender household upon his wife, who not only cheerfully performed this duty, but likewise assisted him in his business, by attending the shop, and folding and stitching pamphlets. Franklin was never particularly fond of eating, and while a mere youth, was unable to tell the dishes of which his dinner was composed. Frugality in diet, was not therefore, a very great virtue with him, because having no strong natural appetite to overcome, he exercised less forbearance in its performance, but with the plans of life he had established for himself, it was exceedingly convenient. His breakfast consisted of bread and milk, served up in an earthen porringer, and eaten with a pewter spoon. His wife afterwards purchased for him, without his knowledge, a china bowl and silver spoon, giving as a reason, that "she thought *her* husband deserved a silver spoon and china bowl as well as any of his neighbors."

In his dress and habits he likewise preserved a scrupulous regard for what his fellow townsmen might think and say of him. Early and late he was engaged at his employment; and frequently, with a rather ostentatious display of meekness, not in keeping with his real sentiments, trundled home his purchases of paper on a wheelbarrow. Now, Franklin had been very much elated at an earlier day with the visit and acquaintance of the *finely dressed* Sir William Keith and Colonel French, and he acknowledges that his apparent disregard for such appearances, in his household and person, was a species of dissimulation, intended to attract the notice and win the regard of those who might aid him in his business. How far this course served him, it would now be difficult to determine, as every thing depends on the composition of society into which one chances to be thrown; but his frugality in living, and determination to expend less than he made, however little that might be, has always opened one of the surest and most permanent roads to wealth. The difficulty in most business pursuits does not so much consist in making money, as in retaining possession of it after it is made.

The Philadelphia library, now one of the largest in the United States, owes its inception to a movement made by Franklin about this period, to collect the works of a few friends together, for their mutual benefit and entertainment. He had, a year or so previous, established a society called the Junto, in which various topics, frequently of a political character, were discussed. An anonymous pamphlet "on the nature and necessity of a paper currency," written when he was but twenty-three years of age, grew out of a series of

discussions in which he engaged at the Junto, and furnishes a pretty fair specimen of his style of reasoning, not only at this early period, but in maturer years. It was favorably received at the time, and although it presents many fallacies, is supposed to have induced the assembly to pass a law soon after for the permanent establishment of a loan office.

Being frequently at a loss for books for reference, he proposed to the members of the society, to bring their books to the room of meeting, in order that they might be of service to all of the members. The plan was agreed to, and the germ from which the Franklin or Philadelphia Library shot forth, was thus planted. It afterwards, during Franklin's life, became a subscription library, and continues to be so to the present day: it is now the second in size in the United States. A large proportion of the articles on speculative subjects, published in the Pennsylvania Gazette, owe their origin to the discussions of this Junto.

With the means for study furnished to him by this library, he began to make amends for the want of an early education, by applying himself, during the hours set apart each day for that purpose, not only to general reading, but close study. He soon became sufficiently acquainted with the French, Spanish and Italian languages, to read them fluently, and likewise made considerable proficiency in the Latin.

In 1732 he began the publication of Poor Richard's Almanac, which he continued for a quarter of a century. It became very popular and profitable, so much so that he frequently found sale for ten thousand copies a year. In 1736 he was made clerk to the general assembly, and in 1737, deputy post master at Philadelphia. These were his first

steps in that political preferment, which in one capacity or another occupied a good portion of his time for the remainder of his life. It is not, however, the political services of Franklin that mainly attract our attention in the life that now engages us, and however much they may be valued in another place, we will be pardoned for running over them with some haste, in order to dwell more particularly on his scientific labors and researches.

His public employments turned his attention to public affairs, from which not a few good results flowed to the citizens of Philadelphia. As there was nothing too high to occupy his mind, so there was nothing too insignificant to fix his attention. One of his first public acts, was a complete and effectual re-organization of the city night watch. The second, a league for suppressing fires. The company formed under his suggestions agreed to keep in a convenient place, and carry to be used at fires, a certain number of leather buckets. This practice grew to be universal in the United States, and continued until within a few years since, when the introduction of a more complete fire apparatus superseded their use.

The plan he adopted for conducting his newspaper, styled the "Pennsylvania Gazette," is worthy of all admiration and imitation. "In the conduct of my newspaper," he remarks, "I carefully excluded all libelling and personal abuse, which is of late years become so disgraceful to our country. Whenever I was solicited to insert any thing of that kind, and the writers pleaded, as they did, the liberty of the press, and that a newspaper was like a stage coach, in which any one who would pay had a right to a place, my answer was, that I would print the piece separately if desired, and the au-

thor could have as many copies as he pleased to distribute himself, but that I would not take upon me to spread his detraction, and that having contracted with my subscribers to furnish them with what might be either useful or entertaining, I could not fill their papers with private altercation, in which they had no concern, without doing them manifest injustice."

Among the earliest of his strictly scientific productions, is an essay on the causes of earthquakes, published in his newspaper, December 15th, 1737, giving a succinct account of the received opinions among philosophers, as to their causes and phenomena. When we take into consideration, that this paper was written before the discovery of the compound nature of air and water, it is certainly not unworthy of the future philosopher. The theory of the fluidity of the interior of the earth, is now pretty generally entertained, and more of the geological phenomena are developed by considering it a mass of moulten liquid, than upon any other supposition. The immediate origin of this paper, and Franklin never wrote without an immediate object, was the slight shock felt but a short time previous throughout the greater portion of the North American continent.

In 1739, George Whitfield, a dissenting clergyman of very persuasive manners, and gifted with the highest order of oratorical powers, made his appearance at Philadelphia, and soon enlisted Franklin as one of his warmest admirers and most steadfast friends. The truth is, Franklin was not averse to religious discourses, as such, provided they were delivered in an eloquent or emphatic manner, but was decidedly opposed to polemical disquisitions, as he could see no good reason for the exaltation of one sect on the ruins of another, consider-

ing them all as charged with the same high and holy mission. The following anecdote very aptly illustrates the wonderful power exercised by Whitfield over his auditors. He had been induced by many painful representations made to him to visit the colony of Georgia, and found the inhabitants of it, who were principally decayed English shop-keepers, with their families, plunged in the deepest distress, and perishing in large numbers. Deeply moved by the helpless condition of the whole colony, and more especially by that of the widows and orphans of those who had died, leaving them exposed to all the evils of want and misery, in a new and unreclaimed country, he conceived the benevolent idea of building an orphan house for them, and returned to Philadelphia for the purpose of collecting the means necessary to put his plan into execution. Many doubted the honesty of his motives; but Franklin, who knew him to be sincere, was opposed to the plan of building the house in Georgia, and preferred that it should be erected in Philadelphia. Whitfield persisted in his original intention, and Franklin declined subscribing. "I happened," says Franklin, "soon after, to attend one of his sermons, in the course of which I perceived he intended to finish with a collection, and I silently resolved he should get nothing from me. I had in my pocket a handful of copper money, three or four silver dollars, and five pistoles in gold. As he proceeded I began to soften, and concluded to give the copper. Another stroke of his oratory made me ashamed of that, and determined me to give the silver, and he finished so admirably, that I emptied my pocket wholly into the collector's dish, gold and all."

Franklin, whose mind was almost instinctively turned to-

wards philosophical pursuits, felt the want of some defined organization to afford its protection and patronage to learned men; and, as with him, to conceive was to execute, he immediately set himself to the task of rearing in the midst of the American forests an institution, which should not only have the name but the attributes of a learned society. He accordingly issued a circular, dated the 14th of May, 1743, proposing the plan for "the American Philosophical Society," since adopted. This circular was printed on separate sheets of paper, and sent to such persons as were thought to possess sufficient learning and public zeal to further this object. This was the first published notice of the organization of a society which has for so long a period maintained a high place among the learned bodies of the world.

The society suggested in these proposals, was organized a few months afterwards, and elected Thomas Hopkinson its president, and Benjamin Franklin its secretary. The society was at first composed of but few members—about one-half of whom resided in Philadelphia, and the remainder in the different American colonies. In a letter, addressed by Franklin to Dr. Cadwalader Colden, of New York, on the 5th of April, 1744, the result of its organization is given, as well as a list of its first members. This gentleman proposed to Franklin, the propriety of publishing the proceedings of the society from time to time; but, probably from want of funds, the plan was not immediately adopted, and its first volume of Transactions did not appear before the year 1769.

In the meantime, Franklin, in a letter to Colden, written in November, 1745, says: "I am now determined to publish an American philosophical miscellany, monthly or quarterly. I

shall begin with next January, and proceed as I find encouragement and assistance." This was one of the few designs conceived by Franklin, never carried into execution. In the organization of this society, Franklin had probably anticipated somewhat the times in which he lived—for it does not appear to have met with much encouragement, and after a few years of feeble existence, lapsed into a slumber, in which it was permitted to repose until November, 1767.

At this time, Dr. Bond succeeded in reviving it, by calling together its old members and electing a number of new ones. During the following year, the medical society of Philadelphia was incorporated with it, and negotiations were opened to unite with it a rival society. On the 2d of January, 1769, these two societies were united under the title of the American Philosophical Society, and elected Franklin as their President, which office he continued to hold until his death.

His attention was soon diverted from the scheme of the Philosophical Society by a new phase in the then open rupture between England and Spain. This latter power being joined by France, Philadelphia felt herself greatly endangered from the invasion of the hostile armies of Spain and her ally. The creed of the Quakers prevented them from joining in open hostilities, even to protect their own firesides, and no little manœuvring was necessary in order to overcome their scruples, and enlist them in the defence of the colonies. The Governor having in vain importuned the Legislature, a majority of whom were *Friends*, to pass a militia law, and other means of defence, Franklin proposed to effect the object by a voluntary subscription, and in order to prepare the way for it, published a pamphlet entitled

PLAIN TRUTH, in which he set forth their feeble condition so vividly, that it produced an immediate and decided feeling in favor of the movement, and to his instrumentality is generally attributed the preservation of the city from offensive invasion.

It would appear that this opposition to the use of defensive means, frequently placed this sect in an awkward position, from which they managed to extricate themselves with great adroitness. Thus, when on one occasion a demand was made upon the Assembly by the Governor for an appropriation to purchase powder to enable the New England government to sustain itself, they refused to grant the demand, but appropriated three thousand pounds, to be placed in the hands of the Governor to be expended in the purchase of bread, flour, wheat or *other grain*, which the Governor understood to mean powder, and made this disposition of the funds.

Franklin, at a later period, when a member of the Legislature, wishing to obtain the passage of a law to create a lottery to raise funds for keeping the city fortified, proposed in case the measure failed, to ask that the proceeds of the lottery should be expended in the purchase of a *fire engine*. "Then," said he to a fellow member, "if you nominate me, and I you, as a committee for that purpose, we will buy a great gun, which is certainly a *fire engine*."

In 1742, he invented the famous stove, which now bears his name, and which is as extensively used in America at the present day as perhaps any other, except the one known by the name of the "ten-plate stove." He published an essay on warming houses, in 1744, intended mainly to explain the qualities of his invention, which was caught up by stove makers in England, and defectively constructed, so as to do

away with many of its advantages.* The invention of this stove proved to be so great a public benefaction, that the Governor offered him a patent for the exclusive right to vend it for a term of years, which he declined, improperly, we think, because the profit was only transferred from his own pocket to the dealers who vended the article, who having more regard for their gains than its reputation, manufactured it in the slightest possible manner.

Franklin's pecuniary circumstances were day by day becoming more prosperous. "My business," he remarks, "was now constantly augmenting, and my circumstances growing daily easier, my newspaper having become very profitable, as being for a time the only one in that and the neighboring provinces. I experienced, too, the truth of the observation, '*that after getting the first hundred pounds, it is more easy to get the second;*' money itself being of a prolific nature." He now felt himself somewhat at liberty to retire from the more active labors of his occupation, in order to devote more of his time to scientific pursuits, which he cultivated with great avidity and delight. With this view, he associated with him in business, in 1748, Mr. David Hall, a man of worth and integrity, and well known to Franklin, having been in his employ some years previous. Neither had occasion to regret the association, which continued to the mutual satisfaction and profit of both for nearly twenty years.

He was not particularly attached to money for itself, but rather as a means of aiding him in the attainment of higher objects, nor did he entertain any great desire to enrich his

* Playfair says that this treatise is "infinitely more original, concise and scientific than that of Count Rumford's," on the same subject.

immediate posterity by his gains. On this subject, he thus writes to his mother: "As to your grand-children, Will is now nineteen years of age, a tall proper youth, and much of a beau. He acquired a habit of idleness on the expedition, but begins of late to apply himself to business, and I hope will become an industrious man. He imagined his father had got enough for him, but I have assured him, that I intend to spend what little I have myself, if it please God that I live long enough, and as he by no means wants acuteness, he can see by my going on, that I mean to be as good as my word."

This letter likewise informs us as to his mode of disposing of his time. "For my own part," it continues, "at present, I pass my time agreeably enough; I enjoy (through mercy) a tolerable share of health. I read a great deal, ride a little; do a little business for myself, (and now and then for others;) retire when I can, and go into company when I please; so the years roll round, and the last will come, when I would rather have it said, *he lived usefully* than *he died rich*."

Franklin's mind was too active long to continue without employment of some kind; and as he had, in a great measure, become disconnected from his own private business, he found himself insensibly more and more engaged with the affairs of the public, acting upon the hint contained in the letter to his mother, written about this period, that he would rather *live usefully* than *die wealthy*. He always recurred with great pleasure to the few months of instruction he had received at a grammar school, and the advantages he derived from this brief period of instruction, as well as the want he felt of the necessity for a more extended course, made him a steadfast friend to similar institutions.

He had accordingly no sooner arranged his private affairs in such a manner as to require less of his attention than heretofore, than he sought to revive a plan, set on foot by himself some few years previous, without success, to establish an Academy in Philadelphia, on a highly respectable footing. After enlisting a number of personal friends in the matter, he wrote and published a pamphlet, called "*Proposals relating to the education of youth in Pennsylvania*," which he distributed without charge, to the principal inhabitants. This pamphlet, written in his usual plain and forcible style, set forth the want and advantages of education, and laid down a plan of instruction to be pursued. It was accompanied by a large collection of notes and quotations from the ablest writers on the subject of education. The way being thus prepared, he set a subscription on foot, that amounted to over five thousand pounds.

Franklin had long previous to this period, learned that the most effectual way of accomplishing any matter of public utility, or one which depended on the public for its support, was to withdraw as much as possible from their gaze, and allow it to be considered as the work of others, rather than that of the individual most zealous in pressing it forward, for as he wisely remarks, "the present little sacrifice of your vanity will afterwards be amply repaid. If it remains a while uncertain to whom the merit belongs, some one more vain than yourself may be encouraged to claim it, and then even envy will be disposed to do you justice by plucking these assumed feathers, and restoring them to their right owner."

In his scheme of the academy, therefore, he presented it not as a plan of his own, "but of some *public spirited gentle-*

men," and its result verified his own shrewd observation just quoted, for no one now thinks of ascribing its origin to any other source than *himself*. The academy went into immediate operation, and so flourishing was its condition, that the building it occupied was found inadequate to accommodate the number of scholars demanding admittance, and a new one was obtained through the agency of its projector and steadfast friend, with the understanding that a charitable school should be attached to it. It received a charter 14th May, 1755, from the Proprietaries, conferring upon it collegiate privileges, and considerable additional grants.

In 1765, it was increased by the addition of a medical department, and finally, in 1779, assumed the dignity and title of the University of Pennsylvania. "I have been continued one of the trustees," adds Franklin, "from the beginning, now near forty years, and have had the very great pleasure of seeing a number of the youth, who have received their education in it, distinguished by their improved abilities, servicable in public stations, and ornaments to their country."

His services were considered so valuable to the community in which he lived, that he was called upon to fill many public stations. The Governor made him a justice of the peace at a time when it was considered highly honorable to fill that post; the people elected him to the council, and afterwards selected him as an alderman, and he was returned to fill a seat in the assembly, a post occupied by him for ten consecutive years, and more to his credit, from the circumstance that he never solicited it, or a re-election.

Dr. Thomas Bond, a particular friend of Franklin's, and an associate of his in the Philosophical Society, took up very

warmly the project of establishing an hospital, but wherever he went he was coldly met with an equivocal answer. "At length," says Franklin, "he came to me with the compliment that he found there was no such thing as carrying a public spirited project through without my being concerned in it. For, said he, I am often asked by those to whom I propose subscribing, *Have you consulted Franklin on this business? And what does he think of it?* And when I tell them that I have not, supposing it rather out of your line, they do not subscribe, but say, *they will consider it.*"

The project happened to be in *Franklin's* "line," and by means of the warm support he gave to his friend, he was enabled by a joint private subscription, and donations from the assembly, to carry it through, and after the lapse of nearly a century, it now presents itself as one of the first institutions of the kind in the United States, and one of the proudest and most praiseworthy monuments of the gifted and public spirited mind, through whose agency it was established. Most truly has he obtained his wish in having posterity say of him, that *he lived usefully, if he did not die rich.*

But as we have already had repeated occasions to notice, the project need not be necessarily great, to attract his attention. He had the fortune, whether good or bad, of living in a town which was rapidly changing its character from a village to a populous city, and all of the different wants incident to the latter, had yet to be supplied. Street paving and cleansing, were then unknown, and lighting, an experiment to be tried. For each of these, either as the original suggestor or improver of that suggested by others, Philadelphia is indebted to his public spirit.

The affairs of the colonial post-office were in any thing but a prosperous condition at the time when Franklin first became associated with it. The accounts of the different deputies and others engaged in its management, were in a very confused state, and the Postmaster General duly appreciating his strict business qualities, empowered him to regulate the accounts of the various offices. Upon the death of that functionary, which occurred in 1753, he was appointed in connexion with William Hunter, Esq., to succeed him, by the English Government. This official employment caused him to take a journey to New England, and while there he received the honorary degree of Master of Arts from Cambridge College, and likewise the same honor from Yale College. These degrees "were conferred," says Franklin, "in consideration of my improvements and discoveries in the electric branch of natural philosophy."

The improvements and discoveries in electricity to which he alludes, may be best told by following the steps taken by Franklin in this important branch of science, and as his high claims as a philosopher are principally connected with them, it needs no apology for dwelling upon them at some length. Electricity, as a subject of scientific pursuit, does not appear to have attracted his particular attention prior to 1746. In that year he met at Boston a Scotch gentleman named Spence, who had an electrical apparatus, and performed some curious experiments, which being new to Franklin, interested him exceedingly. By a singular coincidence the Philadelphia Library shortly after his return home, received from Peter Collison, of London, and a member of the Royal Society, a present of an electrical glass tube, with instructions

for its use. Franklin, with this instrument, and a few others ordered to be made by himself, commenced a series of experiments, the results of which were detailed in a series of letters to Mr. Collison, beginning with one dated 28th March, 1747. Dr. Priestly, in speaking of these letters, says: "There is hardly any European language into which they have not been translated, and as if this were not sufficient to make them properly known, a translation of them has lately been made into Latin. It is not easy to say, whether we are most pleased with the simplicity and perspicuity with which these letters are written, the modesty with which the author proposes every hypothesis of his own, or the noble frankness with which he relates his mistakes, when they were corrected by subsequent experiments."

Before detailing Franklin's experiments we shall enter into a cursory review of what was known on this subject prior to his time. For a great number of ages philosophers were aware that amber possessed the power, when excited by friction, of attracting certain light bodies, and on this account it was supposed to be endowed with some peculiar living principle. From this substance the name of electricity is derived—from the Greek word *ηλεκτρον* (amber). This was all that was known of electricity before Dr. Gilbert, a physician of London, ascertained that other substances besides amber possessed the power of attraction. Dr. Gilbert tried a great variety of experiments, and enlarged considerably the list of articles proven to be capable of attraction, which are enumerated in a Latin treatise written by him, styled "*De Magnete*." He ascertained that moisture at once arrested the electrical phenomena, and that consequently his experi-

ments could not succeed in a damp atmosphere. As might be imagined, some very incongruous notions crept into his treatise, as that glass and other substances lost their virtue after being exposed to a high temperature. In a comparison instituted by him likewise, between electrical and magnetic phenomena, he remarks, that in magnetism both attraction and repulsion are seen, while in electricity attraction is the only power manifested. This work, published about three years before his death, was not only the most complete treatise on the subject then extant, but one of the first attempts made to establish a system of philosophical reasoning founded on actual experiments, so ably defended by Lord Bacon a few years later.

Boyle went a step farther, and discovered that a substance, when electrified, was capable of attracting others not so, without regard to their kind. Thus he attracted particles of non-electrified amber, with electrified amber. He likewise found that the experiments could be performed in vacuo as well as the air, and hence concluded that the air had no agency in their production.

Guericke ascertained about the same time, that when a body was once attracted by an electrized one, it was likewise repelled by it, and did not return until it had touched some other body. He also discovered that a body immersed in an electrical atmosphere, was itself electrified, but with an electricity directly opposite to that of air. Guericke likewise remarked the emission of light and sound in the passage of electricity from one body to another. His experiments were made with a compound globe of glass and sulphur, which latter is now known to be unnecessary in exciting electrical

phenomena. This phenomena was also taken notice of in America as well as in England. In a letter addressed to Boyle, from Virginia, in 1684, by Mr. Clayton, and published in the philosophical transactions, notice is taken of a strange accident which happened to Mrs. Sewall, whose clothing emitted flashing sparks. The same phenomena was noticed in the case of Lady Baltimore.

Hawkesbee investigated the phenomena of electrical light, with greater care than any of his predecessors, and arrived at more gratifying and wonderful results. By what was probably an accident, he discovered that crude mercury agitated in the exhausted receiver of an air pump, gave out momentary flashes of pale light to be seen darting in a great variety of directions, and suddenly subsiding. Further experiments convinced him that the entire exclusion of the air was not necessary to the success of the experiment, although he imagined it to be much more vivid in vacuo.

He did not confine himself to mercury, but used a number of other substances, which produced a greater or less evolution of light. Among other experiments, he caused a glass globe to be so constructed that he could turn it with great rapidity, and after exhausting the air within, discovered, while the globe was in an electrical state, that the application of his hand to it, produced the emission of a strong light within the globe, but if he let air within, the light appeared without as well as within, and adhered to his fingers. This experiment led him to doubt the opinion he at first entertained, that the mercury was the cause of the light, yet although the thinnest possible gauze intervened betwixt him and the truth, it prevented him from discovering the true cause in the glass itself

He performed a great number of other experiments in order to ascertain the quantity of electrical light that could be produced, which were so far successful, as to show the great amount and subtility of this fluid. These experiments are detailed at large, in his work published in 1709, where the reader curious in such matters, can find them.

He likewise made an experiment to show the attraction and repulsion of electricity. For this purpose, he tied a number of threads around a metallic wire hoop, with their ends floating loose. Whenever these floating ends were brought near to a glass cylinder, strongly excited, they were attracted to some particular part of the cylinder, and continued pointing in that direction, in whatever way he held the wire hoop, for several minutes. If whilst the threads were pointing towards the cylinder, the finger was approached very near to them, they would be attracted towards it, but if it was held at the distance of an inch, they would be repelled.

Sir Isaac Newton observed this phenomena of attraction and repulsion, although less distinctly than Mr. Hawkesbee. He placed some small pieces of paper beneath a small glass, strongly excited, contained in a metallic ring, and observed that whenever he brought his finger near to the glass, although neither the glass nor the papers beneath were touched, yet they assumed new positions dependent upon the presence of his finger. Neither of these philosophers understood or attempted to explain the phenomena further.

Mr. Stephen Gray, a charter-house pensioner, in 1728, and the several succeeding years, engaged in a series of experiments, in part alone, and in part in conjunction with his

friends Wheeler and Godfrey, which resulted in the discovery of the power of native electrics to communicate that power to bodies in which it is not possible to excite it, and a classification of bodies into electrical, and non-electrical. A notice of the experiments which led to results so important, would extend this work beyond our proposed limits, but are to be found at large in the abridged Philosophical Transactions.*

M. Du Faye, a member of the French Academy of Sciences, repeated Gray's experiments, and found that all bodies, with the exception of metals, and those which were too soft to bear friction, might be made electric by heating, and then rubbing them. He likewise ascertained that the denser the substance, the greater the amount of friction required to produce electrical action. Another discovery of his was, that all bodies, indiscriminately taken, were capable of receiving electricity when insulated on glass, and slightly warmed.

The great additions made by him to the science, were the discovery of two fundamental laws, explaining many of its hitherto inexplicable phenomena. The first of these was, that all bodies highly charged with electricity attract those which are not so, and repel them as soon as they become electrified by contact with them; the second, that there were two kinds of electricity, one of which he denominated vitreous, the other resinous, from the substances in which they were found. The peculiar properties of these two electricities, he conceived, were, that while they attracted each other, they repelled themselves.

For several years after the experiments of Du Faye and Gray, the principal additions made to electricity were of a

* Abridged Philosophical Transactions, from 1719—'33, vol. vi. p. 7—27.

minor yet not unimportant character. Its nomenclature was improved, and classified under Desaguliers, and its machinery brought to a greater state of perfection than heretofore by the Germans. The tube was superseded by the globe, and it in turn by the cylinder. All these circumstances seemed to combine to open the way for a more brilliant discovery than had yet attended its rapid development. This discovery was the power of accumulating it in glass, called from the place of its discovery the Leyden Jar. This discovery took place in the year 1746, and appears to have been much less the result of accident than any of its predecessors. It is doubtful whether its authorship is due to Professor Muschenbroeck or Mr. Cuneus, but it appears very certain that the original suggestion grew out of a course of reasoning instituted by the Professor. He had noticed that when bodies surrounded by the atmosphere, were charged with electricity, its effect was transient, and the quantity accumulated small, and he conceived that as the air was full of conducting materials, if the bodies thus electrified were surrounded by electrics, they might accumulate a larger amount of electricity, and retain it for a longer period. A glass vessel containing water was selected for the experiment, as furnishing the most ready electric and non-electric substances, at their disposal. Several attempts had been made without effect, when Professor M., who had the glass vessel containing the water, having a connexion with the prime conductor, in one hand, and with the other hand was attempting to disengage it, was surprised in the act of so doing by a sudden and violent shock, felt in his arms and breast, so intense as to deprive him momentarily of breath. The shock, which was unexpected,

proved conclusively the correctness of the reasoning and the success of the experiment. The mode of demonstrating it, however, was not much to the satisfaction of the Professor, who, in writing to Reaumer, a few days after, describing it and its results, says that he would not "take a second shock for the kingdom of France."

Dr. Watson took up the suggestions of the Leyden experimenters and greatly amplified them. With the aid of Dr. Bevis, he arranged the jar, with its internal and external coating of metallic foil as it is now used, and in a paper read to the Philosophical Society, gave an exact and detailed account of its action, so far as it was then known, and the advantages resulting from the coatings of metallic foil. He made the observation that a circuit was necessary to induce the shock produced by it, and that where an individual simply touched one within the circuit, he did not experience any thing of the shock. He likewise remarked the coruscations of light as well as the sound elicited within the vial in the communication of the electricity, and seems to have approached to the very verge of the discovery, which afterwards rewarded the labors of Franklin, without perceiving it.

Nor was Dr. Watson the only electrician whose attention was arrested by the phenomena of the Leyden jar, for no discovery in electricity prior to this period, ever created so profound a sensation, or induced so great an anxiety to witness its results as this—results which while they inspired the profoundest philosophers with admiration, baffled their most scrutinizing investigations.

The Abbé Nolet, whose name is deservedly placed at the very head of continental electricians, and who was associ-

ated with Du Faye in his satisfactory experiments, attempted to ascertain how many persons could be electrified by the jar at once. He accordingly placed all the members of the Carthusian convent at Paris, in a line, and extended it to nine hundred fathoms (toises,) by placing iron wires in the hands of each person. The whole community, on the discharge of the jar, equally felt the shock. He also produced death in birds and fishes, by the intensity of the electrical discharge.

Having observed the effects of electricity on the living organization, he was induced to go a step farther, and showed that a diminution of weight was an invariable result of long continued electricity. The positions he assumed as the results of his experiments, were, that electricity increases the natural evaporation of fluids, that those fluids are most affected which have a disposition to evaporate themselves, and that they evaporate more readily where the tubes containing them are non-electrics.

These positions were proved by electrifying capillary tubes containing water, which caused it to issue in a stream, presenting a very beautiful appearance when the experiment was made in the dark. He assumed that all organized bodies were a collection of capillary tubes filled with fluids, having a tendency, to a greater or less extent, to discharge themselves. He conceived, therefore, that electricity might have some effect on the flow of saps in vegetables, and induce an increase of insensible perspiration in animals.

These experiments convinced the Abbé Nolet of the existence of an *effluent* matter, carrying with it the fluid particles of the body electrified, and the imbibition of electrical mat-

ter, by a body when plunged into an electrified atmosphere, proved to him the presence of *affluent* matter; and hence arose his favorite theory of *affluent* and *effluent* currents, in which, however, he failed to notice the fundamental rule of Du Faye, that the electricity thus received, differed from the electricity of the air itself. This theory enlisted more discussion and occupied a larger share of public attention than that of any other, before the time of Franklin, and whatever its ultimate fate, it is very certain that its projector always continued to entertain the most unshaken confidence in its correctness, and advocated its claims with a display of ingenuity and fund of invention, unsurpassed in the annals of scientific investigation.

We have thus briefly placed before the reader the most important facts connected with the discovery and development of electricity prior to the time when Franklin began his experiments, and as our purpose has been to condense a voluminous subject into as small a compass as possible, we have only alluded to the more important of these, leaving others of minor interest, as well as a detailed account of the experiments of all untouched.

In compliance with the promise made to Mr. Collinson a few months previous, Franklin addressed to him a letter dated 11th July, 1747, informing him of the discoveries he had made. The first of these was the power of pointed bodies to draw and throw off the electrical current. In order to demonstrate this, he placed an iron shot of three or four inches in diameter on the mouth of a glass bottle. He suspended immediately above it, by a silken thread fastened to the ceiling, a cork ball, in such a manner as to allow the

cork to come in contact with the iron ball. When this ball was electrified the cork was repelled to the distance of about four inches from it. On approaching a pointed bodkin to within about eight inches of the ball, the cork immediately returned to the shot. It was necessary to approach a blunt body to within an inch of the ball, to produce the same effect. When the experiment with the pointed instrument was made in the dark, a light resembling that of a fire-fly was seen to culminate upon its point at a distance of one foot or more.

Another discovery communicated by this letter was, that the electric fluid was not created by friction, but merely collected from the adjoining non-electric bodies, and he had succeeded in demonstrating its afflux to the electrical sphere, as well as its efflux by means of little paper wind-mills, with the vanes fixed obliquely and turned on wire axes. This letter assumes the following propositions:

1. "A person standing on wax, and rubbing the tube, and another person on wax drawing the fire, they will both of them (provided they do not stand so as to touch one another) appear to be electrized to a person standing on the floor; that is, he will perceive a spark on approaching each of them with his knuckle."

2. "But if the persons on wax touch one another during the exciting of the tubes, neither of them will appear to be electrized."

3. "If they touch one another after exciting the tube and drawing the fire as aforesaid, there will be a stronger spark between them, than was between either of them and the person on the floor."

4. "After such a strong spark, neither of them discovers any electricity."

From these propositions he was led to conclude that the electric fluid was transmitted from the person who excited the electrical tube, to him who touched it, and that one received an undue portion of electricity at the expense of the individual from whom it was abstracted. "Hence have arisen," remarks Franklin, "some new terms among us, we say B. (and bodies like circumstanced) is electrized *positively*, and A. *negatively*." These terms have, since his day, continued in general use, as expressing the different electrical states. Dr. Watson, in a paper published in January, 1748, developed the same theory, but as Franklin's letter was written several months before, the priority of the discovery is certainly due to him. It is but justice to Dr. Watson to add, that, at the time of communicating his discovery, he was not aware of the existence of this letter. Franklin had no sooner established to his own satisfaction these opposite electrical states, than he attempted to apply them to a development of the phenomena of the Leyden jar, which formed the subject of another letter addressed to the same gentleman, dated 1st September, 1747, and a subsequent one in the following year.

In these letters he demonstrated that when one side of the glass was positively electrified, the other was negative; that the quantity of electric fire within the jar remained the same, all its phenomena being dependent upon its unequal distribution; and that this equilibrium could not be restored from within the jar, but must come from without. "So wonderful," adds he, "are these two states of electricity, the *plus*

and *minus* combined and balanced, in this miraculous bottle, situated and related to each other in a manner that I cannot comprehend! If it were possible that a bottle should in one part contain a quantity of air strongly compressed, and in another part a vacuum, we know that equilibrium would be instantly restored *within*. But here we have a bottle containing at the same time, a *plenum* of electrical fire, and a *vacuum* of the same fire; and yet the equilibrium cannot be restored between them but by a communication from *without*, though the *plenum* presses violently to expand, and the hungry vacuum seems to attract as violently to be filled."

These important results were confirmed by him in a series of very beautiful experiments, in the making of which he was led to notice a number of circumstances in connexion with the Leyden jar, which had not heretofore attracted the attention of experimenters. One of the most important of these, was that the whole force of the battery resided in the *glass*, the non-electrics in contact with it both within and without, serving no other purpose than to give and receive electricity from the glass.

Upon ascertaining this fact, by a very ingenious experiment, he constructed what he termed an electrical battery, of plates of glass, coated with leaden plates, placed on silken cords, at two inches distant from each other, so arranged as to render them capable of being discharged together, or separately. The effect of this battery was equal to that of the jars, proving that their peculiar construction was unnecessary.

He farther proved that the electric fluid resided in the glass, by gilding it over, and coating it with turpentine varnish. On inducing an electrical discharge, a hole was made

in the gilding, and the varnish, though dry and hard, was burnt by the spark and gave a strong smell and visible smoke. "It is amazing to observe," he adds, "in how small a portion of glass, a great electrical force may lie. A thin glass bubble, about an inch in diameter, weighing only six grains, being half filled with water, partly gilt on the outside, and furnished with a wire hook, gives, when electrified, as great a shock as a man can well bear. As the glass is thickest near the orifice, I suppose the lower half, which being gilt, was electrified, and gave the shock, did not exceed two grains, for it appeared, when broken, much thinner than the upper half. If one of these thin bottles be electrified by the coating, and the spark taken out through the gilding, it will break the glass inwards, at the same time that it breaks the gilding outwards."

But however wonderful the discoveries of Franklin may have appeared to the learned world at the time of his making them known, they sink into insignificance when compared with that we are now about to describe. Mr. Gray, in communicating his discoveries to the Royal Society, remarks, that "in time there may be found out a way to collect a greater quantity of the electrical fire, and consequently to increase the force of that power, which by several of these experiments, *si licet magnis componere parva*, seems to be of the same nature, with that of thunder and lightning." A few years later Abbé Nolet says, "If any one should take upon him to prove, from a well connected comparison of phenomena, that thunder in the hands of nature, is what electricity is in ours, that the wonders which we now exhibit at our pleasure, are little imitations of those great effects which

frighten us, and that the whole depends upon the same mechanism; if it is to be demonstrated that a cloud, prepared by the action of the winds, by heat, by a mixture of exhalations, &c., is opposite to a terrestrial object, that this is the electrized body, and at a certain proximity from that which is not, I declare that the idea, if well supported, would give me a great deal of pleasure; and in support of it how many spacious reasons present themselves to a man well acquainted with electricity."

Little did the good Abbé imagine that while he wrote, the man was living, who would demonstrate to him the truth of his philosophical dream, and still less did he imagine, that so far from experiencing the pleasure which he avows such a development would give him, he would array himself as the most formidable enemy of the discoverer and his theory. But whilst Gray, the Abbé Nolet, and others of less note, amused themselves with this dimly shadowed phantasm, whose proportions were too indistinct to impress themselves with the reality of life upon their minds, and whose phenomena were too obscure to enable them to reveal the mystery that flitted before their vision, Franklin, with a loftier flight of genius, first assumed the identity of electricity and lightning, and afterwards attempted to demonstrate this identity by experiments. Whilst there is nothing in the whole history of electricity more sublime than this discovery, there is nothing which more vividly impresses us with the great reasoning powers of its discoverer, than the manner in which he seized upon and developed this problem. No accident, no fortuitous combination of circumstances, or no lucky hit, induced Franklin to assume this identity, but those rigid deductions from

analogies, which none but a mind of the highest order of reasoning powers, is capable of carrying out to their ultimate conclusions, and he was as well satisfied in his own mind of this identity before he made his first experiment, as he was enabled to satisfy others, after the series had been completed.

The communication made to Mr. Collinson, on the subject of Leyden jars, was followed by one explaining "the several phenomena of thundergusts," in which he established the identity between electricity and lightning. Franklin assumed that "non-electric bodies that have electric fire thrown into them, will retain it till other electrics that have less approach, and then it is communicated by a snap, and becomes equally divided;" that electricity is attracted by water, and can subsist with it; that air is an electric *per se*, and when dry will not conduct electricity; that if the water, from the vapor of which clouds are formed, is electrified, the vapor will be electrified likewise, and floating in the air in the form of clouds, will retain that electricity until they meet with other clouds or bodies not so highly electrified, when a discharge of electricity and an equilibrium will take place; that clouds raised by water from the land, do not contain as much electricity as those raised from water from the sea; and that when a great number of clouds from the land and sea meet, the electrical flashes appear to strike in different parts, as they are jostled together by the wind, and they continue to give and receive flash after flash until the equilibrium is restored.

Having thus pointed out the mode by which clouds can accumulate and retain electricity, he proceeds to show some of the similarities between the effects of lightning and electricity.

An electric spark when drawn from an irregular body at a considerable distance, is crooked, and so is a flash of lightning from a cloud which is irregular.

High trees, towers, masts of ships and elevated points of land, are first to attract lightning; pointed conductors in like manner, draw off the electric fluid from highly charged bodies, in preference to blunt ones, or flat surfaces; hence the danger of standing under a tree in a thunder storm.

Electricity is readily conducted by water—so is lightning; a wet rat cannot be killed by exploding an electrical bottle—a dry one may be. On the same principle, wet clothing is a great protection to an individual struck by lightning, because the lightning may flow off with water on the clothing: otherwise it will seek the body, being composed of fluid particles. The writer once knew a colored man to be preserved in this manner. The lightning passed down his side and tore off his shoe, but did the man little injury beyond the severe shock he experienced.

“Electricity is capable of setting fire to hard dry rosin, spirits, and other substances—so is lightning; hay-stacks, barns, and other things, are often set on fire in this manner.

“Electricity fuses metals under some circumstances—so does lightning.

“Lightning rends some bodies—so does the electrical spark.

“Lightning is frequently fatal to animal life—and so is electricity.”

“Reading,” remarks Franklin in continuing the similarities between lightning and electricity, “in the ingenious Dr. Miles’ account of the thunder-storm at Stretham, the

effect of the lightning in stripping off all the paint that had covered a gilt moulding," without hurting the rest of the paint, I tried the same experiment with the electrical shock, and with the same result.

The analogy between the two principles being thus proved, Franklin proceeded to establish the identity beyond any possibility of doubt, by actual experiment, and attempted the bold project of bringing down the lightning from the heavens, and subjecting it to the test of his analysis. He at first proposed to effect this object by placing a sentry box on some elevated tower or spire, from which could be raised a pointed metallic conductor, terminated beneath by a cake of wax, for the purpose of insulating it. At that time no building was to be found in Philadelphia sufficiently elevated, and while waiting for the erection of a church spire, then in process of building, the thought occurred to him that he might with greater readiness secure a contact with the clouds by means of an "electrical kite," which differed from the one in common use, only in material; it being made of a silk handkerchief, instead of paper, the former being less likely to be affected by the rain. The top of this was terminated by an iron point, and in communication with this point was a hempen cord, joined near the bottom to one of silk; where the hempen and silk cords were united, he attached a metallic key.

Thus prepared, he went out on the commons, on the approach of a thunder-storm, accompanied by his son, to whom alone he confided his intention, fearing the ridicule that might attach to an unsuccessful experiment of the kind, and having protected himself from the rain by a small shed, he raised his kite in the air and awaited the issue. A thunder-cloud

passed over without affecting his kite, and he began almost to despair of success, when he remarked the loose fibres of his string in motion, and bristling, in an upright position, as if placed on a conductor. On applying his knuckle to the key, he experienced a smart shock in his finger, accompanied by a bright spark. The experiment had succeeded, and his theory was proved. It would be easier to imagine than to describe his sensations at this moment. The string soon became wet with the rain, and in this condition, being a better conductor, he was enabled to collect an abundant supply of electricity, with which he charged a jar prepared for that purpose, and afterwards exhibited with it all the phenomena developed by the Leyden jar charged by the electric battery.

This experiment was made in June, 1752. It had been successfully performed about one month previous, in Paris, by M. De Lor, on the plan proposed by Franklin, although at the time of making the experiment in Philadelphia, he had not been apprized either of the attempt or the result. Franklin, in alluding to it, and the manner in which his letters were received in Europe, with great modesty says: "What gave my book the more sudden and general celebrity, was the success of one of its proposed experiments made by Messieurs Dalibard and De Lor, at Marly, for drawing lightning from the clouds. This engaged the public attention every where. M. De Lor, who had an apparatus for experimental philosophy, and lectured in that branch of science, undertook to repeat what he called the *Philadelphia experiments*, and after they were performed before the king and court, all the curious of Paris flocked to see them. I will not swell this narrative with an account of that capital experi-

ment, nor of the infinite pleasure I received in the success of a similar one I made soon after, with a kite, at Philadelphia."

He afterwards had an insulated rod constructed to draw the lightning into his house, with a bell attached, in order to inform him when the rod was affected by electricity. By means of this apparatus he was enabled to collect a considerable quantity of electric fluid, on which to experiment at his leisure.

The theory of Franklin being thus determined by experiment, its paternity became a matter of serious discussion. It was shown that Gray and Nolet had both dwelt on this subject as something which might hereafter be realized, but with all the acuteness envy was enabled to enlist on its side, no one could show that beyond the most ideal surmises floating loosely through the minds of these great philosophers, the identity of lightning and electricity, had been gravely entertained, or a single step made to elucidate its phenomena, before the appearance of Franklin's letters.

From two of the discoveries made by Franklin, viz: the superior power of pointed bodies to attract electricity, and the identity between lightning and electricity, he sought to establish an invention whose advantages to the human race can scarcely be estimated. This was, the protection of buildings from the effects of lightning, by placing above them a pointed metallic conductor, terminating in the earth. This metallic rod being the best as well as the most ready conductor, the lightning would necessarily traverse it, and thus preserve the building harmless from its effects.

He entertained the opinion that in every stroke of lightning, the electrical current moved to restore an equilibrium

between the cloud and the earth, selected its own passage by means of those things which were the readiest conductors, as damp walls, metals, &c., and would go considerably out of its way to seek the assistance of one of these conductors. Metal rods being the best conductors if of sufficient thickness, and extending from the highest part of an edifice to the ground, would afford the most complete immunity to the building by restoring the equilibrium so fast as to prevent a stroke, or if it did occur, it would be conducted by the rod from its point to the earth.

He found that the gilding on a book, consisting of the finest filletting of gold, was sufficient to draw off the discharge from five highly charged large Leyden jars, and he therefore supposed that a wire a quarter of an inch in diameter, which contained about five thousand times as much metal as his gold line, would protect any building, but that a rod half an inch in diameter conducting four times as much as one of one-fourth of an inch, would prevent the possibility of any dangerous contingencies. He farther showed, that although the rod might be destroyed by the intensity of the electric shock, so as to render it useless thenceforth, it would nevertheless, conduct off the electric current for the time with perfect safety.

We leave Franklin to relate the manner in which the letters containing these important discoveries were at first received in England. "Collinson got them read in the Royal Society, where they were not at first thought worth so much notice as to be printed in their *transactions*. One paper which I wrote for Mr. Kinnersley on the sameness of lightning and electricity, I sent to Mr. Mitchel, an acquaintance

of mine, and one of the members also of the Society, who wrote me word that it had been read, but was laughed at by the connoisseurs. The papers, however, being shown to Dr. Fothergill, he thought them of too much value to be stifled, and advised the printing of them. Mr. Collinson then gave them to Cave for publication in his *Gentleman's Magazine*, but he chose to print them separately, in a pamphlet, and Dr. Fothergill wrote the preface. Cave it seems, judged rightly for his profession, for by the additions that arrived afterwards, they were swelled up to a quarto volume, which has had five editions, and cost him nothing for copy-money."

"It was, however, some time before these papers were taken much notice of in England. A copy of them happening to fall into the hands of the Count de Buffon, a philosopher of deservedly great reputation in France, and indeed all over Europe, he prevailed with M. Duborg to translate them into French, and they were printed at Paris. The publication offended the Abbé Nolet, preceptor in Natural Philosophy to the royal family, and an able experimenter, who had formed and published a theory of electricity which then had the general vogue. He could not at first believe that such a work came from America, and said it must have been fabricated by his enemies at Paris, to oppose his system. Afterwards, having been assured that there really existed such a person as Franklin at Philadelphia, which he doubted, he wrote and published a volume of letters, chiefly addressed to me, defending his theory and denying the verity of my experiments, and of the positions deduced from them.

"I once proposed answering the Abbé, and actually began the answer; but on consideration that my writings contained

a description of experiments which any one might repeat and verify, and if not to be verified, could not be defended; or of observations offered as *conjectures*, and not delivered dogmatically, therefore not laying me under any obligations to defend them; and reflecting that a dispute between two persons, written in different languages, might be lengthened greatly by mistranslations, and thence misconceptions of one another's meaning, (much of one of the Abbé's letters being founded on an error in translation,) I concluded to let the papers shift for themselves, believing it was better to spend what time I could spare from public business in making new experiments than in disputing about those already made, I therefore never answered M. Nolet. And the event gave me no cause to repent my silence; for my friend M. Le Roy, of the Royal Academy of Sciences, took up my cause, and refuted him. My book was translated into the Italian, German, and Latin languages, and the doctrine it contained was, by degrees, generally adopted by the philosophers of Europe, in preference to that of the Abbé: so that he lived to see himself the last of his sect, except Monsieur B——, of Paris, his élève and immediate disciple."

It would appear that the Fellows of the Royal Society were doubtful about receiving a new doctrine in science from such a questionable source as America, until it had been endorsed by the continental philosophers. "Dr. Wright," Franklin adds, "an English physician, when at Paris, wrote to a friend, who was of the Royal Society, an account of the high esteem my experiments were in among the learned abroad, and of their wonder that my writings had been so little noticed in England. The Society, on this, resumed the consideration of

the letters that had been read to them, and the celebrated Dr. Watson drew up a summary account of them, and of all I had afterwards sent to England on the subject, which he accompanied with some praise of the writer. This summary was printed in their *Transactions*, and some members of the Society in London, particularly the very ingenious Mr. Canton, having verified the experiment of procuring lightning from the clouds by a pointed rod, and acquainted them with the success, they soon made me more than amends for the slight with which they had before treated me. Without my having made any application for that honor, they chose me a member, and voted that I should be excused the customary payments, which would have amounted to twenty-five guineas, and ever since given me their *Transactions* gratis. They also presented me with the gold medal of Sir Godfrey Copley, for the year 1753, the delivery of which was accompanied by a very handsome speech of the president, Lord Macclesfield, wherein I was highly honored."

Notwithstanding the fascination of these pursuits in philosophy—which, he says in a letter to Collinson, so totally engrossed his time and attention in making experiments and repeating them to his friends and acquaintances, who, from the novelty of the thing, came in crowds to see them, that he had but little leisure for any thing else—he was far from losing sight of the interests of the colony which had elected him a member of its Assembly.

While in the midst of his electrical experiments, and soon after his letters on electricity began to excite a profound impression in Europe, he was nominated by Governor Hamilton, one of four commissioners on the part of Pennsylvania, to

meet commissioners from the other colonies, in a congress to be convened at Albany, by order of the Lords of Trade, to consult as to the means necessary for their mutual protection, in an apprehended rupture with France.

The necessity for this mutual conference for joint protection, suggested to Franklin's mind, the advantage of an union of all the colonies under one general government, which should be endowed with certain powers for defence, and other purposes of general utility. Franklin prepared an outline of a plan of union, on his way to Albany, where he found others entertaining the same sentiments, and the delegation from Massachusetts actually instructed to vote in favor of it.

The convention was held on the 19th of June, 1754, and consisted of twenty-five members, all of whom were in attendance. On the 24th of June, "a motion was made, that the commissioners deliver their opinion whether a union of all the colonies is not at present absolutely necessary for their security and defence." This motion was decided by a unanimous vote in the affirmative. Another motion was then made, that a committee be appointed to digest plans for this purpose. After the presentation of several plans, that of Franklin's was reported by the committee, and after a debate of twelve days upon it, was adopted, with the proviso that an act of Parliament was necessary to give it validity.

The assemblies invariably opposed it, and even that of Pennsylvania, taking advantage of Franklin's absence, expressed its disapprobation of the scheme to his "no small mortification." Nor did it meet with a better fate with the Board of Trade, for it was never recommended to the crown for action. This plan of union devised by the far sighted

philosopher, furnishes us with the first dim shadow of that under which we have attained to so great a degree of prosperity, and although he could not at that period, have contemplated a separation from the mother country, yet his political sagacity enabled him to point out in advance, the only mode in which the scattered colonies of North America could hope to maintain their independence, or attain an elevated position in the scale of nations.

The anticipated rupture having actually occurred, the English government, not willing to allow their colonies to take upon themselves their mutual defence, sent General Braddock, with two regiments of English troops to protect them. The General landed at Alexandria, and continued his march to Fredericktown, Maryland, about forty miles distant, and then a frontier town, where he halted, to obtain information of the country, and wagons to transport his provisions, ammunition, &c. The Assembly of Pennsylvania, fearing that some difficulties might arise between him and the different Governors, requested Franklin, in his capacity of Postmaster General, to wait upon General Braddock, and advise with him as to the best mode of conducting the war with certainty and despatch. He found the General under great misapprehensions as to the adverse conduct of the Legislatures, which he took care to remove, as well as in great embarrassment for the want of the necessary means for transportation. Franklin expressed his regret that he had not landed in Pennsylvania, where wagons were abundant, and finally agreed to procure him one hundred and fifty from that colony.

He was enabled to procure the requisite number in about

two weeks, which together with two hundred and fifty baggage horses, he sent on their way to the camp. For the purpose of defraying the expenses of these wagons, he had received about eight hundred pounds from General Braddock, but finding this sum insufficient, he advanced an additional two hundred pounds out of his own purse, towards the payment of the wagons, and as the General was unknown to the wagoners, he became personally liable for the faithful performance of the contract on the part of the English General.

The unfortunate result of this expedition is well known. Franklin says, "the General was, I think, a brave man, and might probably have made a figure as a good officer, in some European war. But he had too much self confidence, too high an opinion of the validity of regular troops, and too mean a one of both Americans and Indians. George Crogan, our Indian interpreter, joined him on his march, with one hundred of these people, who might have been of great use to his army as guides and scouts, if he had treated them kindly, but he slighted and neglected them, and they gradually left him." This defeat first shook the faith of the inhabitants of the colonies in the invulnerability of British soldiery. They moreover, felt exceedingly indignant at the conduct of the troops, which had been any thing but creditable to themselves or their service, their whole path through the colonies being marked by a system of plunder and insult, unbecoming conquerors, much less allies and protectors.

The colonists had a sufficient lesson in the indignity suffered at their hands, as well as the defeat of Braddock's army, to look with great suspicion upon the protection afforded to them by the mother country, and were very ready

to join in a militia scheme proposed by Franklin soon after, in the Assembly of Pennsylvania, for their self defence. Franklin wrote a dialogue in its favor, which he supposes was of great service in making it popular. He was placed in commission as Colonel of his newly organized force, by the Governor, who supplied him with blank commissions to enable him to select his inferior officers at his own discretion.

The Indians on the frontier having become very troublesome by committing depredations and destroying life, Franklin was prevailed upon by the Governor, to march to the assistance of the frontier settlers, and erect such fortifications as were necessary to secure them from the further encroachments of their savage neighbors. He had hardly erected three rude forts, before he was recalled by the Governor, seconded by many of his friends, to attend a session of the Legislature, where his presence was deemed of the greatest importance.

The private relations subsisting betwixt Franklin and Governor Morris, had always been of the most friendly character, their public of the most belligerent kind. They first met at New York, when Franklin was on his way to Boston, and Governor Morris recently arrived from England, was about to proceed to Philadelphia, to supersede Governor Hamilton, who worn out with altercations betwixt the Assembly and himself, had tendered the resignation of his post to the Proprietaries. On his asking Franklin if he would have an uncomfortable administration, he told him, that he might have a very comfortable one if he would avoid disputes with the Assembly. "How can you," replied the Governor, laughingly "advise me to avoid disputes, when you know I love them so dearly? but for your sake, I promise that I will."

His disputatious temperament, however, got the better of his good resolve, and long before Franklin returned from his northern tour, he had embroiled himself into angry contentions with the Assembly, in which Franklin soon became a participant, from his superior ability over the other members of the Assembly to write well. "Our answers," says Franklin, "as well as his messages, were often tart, and sometimes indecently abusive, and as he knew I wrote for the Assembly, one might have imagined that when we met we could hardly avoid cutting throats. But he was so good natured a man that no personal difference between him and me was occasioned by the contest, and we often dined together."

This continual warfare between the Governor and the House was kept up by that want of identity of interest betwixt the Proprietaries and the inhabitants of the colony, which finally terminated so disastrously for the Proprietary Governments, and so beneficially for the residents of the colonies. The great source of disputation was the raising of revenue by taxation, in which the Proprietaries instructed the Governor to object to any law that did not exclude the large possessions held under this tenure, from any portion of the burden of taxation. The inhabitants thought this oppressive, in the highest degree, and did not hesitate through their representatives in the Assembly, to declaim loudly against it.

Franklin incurred no small share of the displeasure of the Proprietary on account of the part he took in the matter, and he was looked upon by that functionary as the only personage by whose talents the Assembly could hope to maintain successfully, a hostility to him, and his views of the exemption of his immense possessions from taxation. An event of trivial

importance soon occurred, which the Proprietor took the advantage to represent to the injury of Franklin. A number of his officers, during his Colonelship, took the opportunity of a short visit he was about to pay to Virginia, to bestow a little military honor upon him, by escorting him in full uniform, out of town. As this was the first time that this distinction had been bestowed upon any individual in the colony, the Proprietor took occasion to represent it to the Government at home, and accused Franklin of being "the great obstacle to the king's service," preventing by his influence, the passage of such bills as were necessary to raise money, and instanced the parade with his officers, "as a proof of his intention to take the government of the Province out of his hands by force." He also requested, but without effecting his purpose, Sir Evered Fawkener, to remove Franklin from his office of Postmaster General. The Government thought it necessary however, to bestow on him an admonition, not to let the thing occur again.

This warfare betwixt the Proprietaries and people, never for an instant marred the personal friendly relations subsisting between the Governor and Franklin. "I have sometimes since thought," remarks Franklin, "that his little or no resentment against me, for the answers it was known I drew up to his messages, might be the effect of professional habit, and that being bred a lawyer, he might consider us both as merely advocates for contending clients in a suit; he for the Proprietaries, and I for the Assembly. He would, therefore, sometimes call in a friendly way to advise with me on difficult points, and sometimes, though not often, take my advice."

Governor Morris, like his predecessor, at last became tired with the never ending altercations between the Assembly and himself, and resigned his post. His place was filled by Captain Denny, who brought over with him the Copley medal, presented by the Royal Society to Franklin, which he gave to him at a public dinner, prepared for him by the city, on the occasion of his induction into the Gubernatorial post.

Towards Franklin personally, he professed the greatest esteem, and their social relations were always friendly, but he unfortunately brought over instructions to insist upon the same distinction in proprietary property in regard to taxation, which had been the source of contention between the Assembly and the former Governors, and soon found himself in the same unfortunate predicament with his predecessors.

The Assembly, at last, worn out with this long continued obstinacy on the part of the proprietors, determined to represent their case, by petitions, to the king, and appointed Franklin as their agent, to proceed to London, and attend to the interests of the people of the colony. He had accordingly provided himself with the necessary stores, agreed for his passage, and was on the eve of embarking, when Lord Loudon arrived at Philadelphia, clothed, as he said, with full instructions to effect a compromise betwixt the Assembly and the Proprietors, and asked Franklin to delay his journey for a short period, in order to see whether an arrangement conformable to the wishes of both parties might not be entered into. Franklin yielded to his request, and argued the case before him on the part of the Assembly, Gov. Denny representing the Proprietors. Nothing, however, grew out of this interview, and Franklin prepared to resume his journey,

but the ship in which he had secured his passage had already sailed, with all his stores on board, leaving him to supply himself with others, and procure his passage as he best could. This latter, Lord Loudon promised speedily to provide, and as the time for despatching the packet-ships was at his disposal, he assured Franklin that one should set out on the following Monday—the Saturday previous being fixed on as the time of her departure. Franklin arrived at New York on Monday about noon, and as the weather was fair for sailing, he feared he had arrived too late. This was about the beginning of April, but owing to the delays interposed by his lordship, he did not sail before the end of the following June. The cause of this delay was to give Lord Loudon time to write his letters and despatches, which although he was always writing, were never ready. “And yet,” Franklin humorously remarks, “whoever waited on him, found him always at his desk, pen in hand, and concluded he must needs write abundantly.” He happened to be one of those perages, who was always ready to commence, and labored industriously at any undertaking, but unfortunately was never able to complete what he had commenced. The messenger who was waiting in his ante-chamber day after day, for letters to take to Philadelphia at this time, remarked to Franklin, that he was like St. George on the signs, *always on horseback, but never rides on.*” He however, at last, set sail, and arrived at London 27th July, 1757. He remained for a short time as the guest of his friend and correspondent Collinson, finally established himself at Mrs. Stevenson’s, near the Strand, where he continued to reside during his sojourn in great metropolis.

We cannot avoid contrasting Franklin's present entrance into London with that when as a poor and friendless printer boy, thrown unexpectedly upon his own resources in a great city, he was fain to take lodgings in Little Britain, for himself and his friend Ralph, poorer and more friendless than himself, at three shillings and sixpence a week. Upon this present visit his reputation as a profound philosopher and distinguished statesman had gone before him. His letters on electricity, printed several years before by Cave, and afterwards often republished in the English and other languages, had rendered his name as familiar as that of Newton's. His political essays were likewise greatly admired for the profundity of thought they displayed, as well as the chaste language in which they were clothed. But besides these high claims to public attention, he now appeared as the representative of an important colony, clothed with the delegated functions of a legislative assembly, and charged with the responsible duty of representing their grievances to the king.

He was received by the Royal Society, of which he was already a member, with marks of especial attention; and the principal learned men, both of England and France, hastened to pay him that sort of consideration due to his great attainments and exalted position in the learned world. Among these he found most congeniality, for although his attention had lately been much abstracted from scientific investigations by the political relations he sustained to the government, yet he still retained his fondness for them, intermingled, no doubt, by no small share of gratified pride at the fortunate results of his own investigations and experiments.

All of his plans, either of advantage to the colony, which

occupied his first consideration, or of pleasure for himself, were suddenly arrested by the supervention of an attack of intermittent fever, which confined him to his room for nearly six months, in which he was attended by Dr. Fothergill. It appears to have been quite obstinate, returning on every eighth occasion, but was finally cured by an attack of vomiting and purging, nature kindly brought to his relief, after repeated ineffectual trials to effect the same, and the use of large and unpalatable doses of Peruvian bark, then in use, but was superseded by the more elegant and efficient concentration of its active properties in quinine.

In the original charter obtained by William Penn, while he took good care to secure his own rights as proprietor, he guaranteed to those who might settle in the colony many valuable civil privileges, among which were the constitution of a House of Assembly, from which the laws regulating the colony should originate, religious toleration, and a protection to person and property upon the broad English interpretation of the terms.

He had, however, with an eye to his own peculiar interests, retained a right to an immense domain within its territory, and certain rights, not granted to others, which produced a continued conflict betwixt the proprietaries and the inhabitants during the life time of William Penn, but were greatly eased on the accession of his sons, Thomas and Richard, to his immunities and estates. One of the most prolific sources of discord was, as we have already had occasion to state, the exemption of the large possessions of the proprietaries from their share in the burden of taxation.

As the Assembly belonged the power of originating laws,

but they required the sanction of the Governor, who was the agent of the proprietaries, to give them validity. This assent was frequently refused on account of the stringent instructions the governors were sent out with, and hence the dissensions we have observed between the Assembly and the Governor during the entire period Franklin was a member of the legislative body. Franklin, in this contention, was always the steadfast champion of the Assembly and the opposer of the high pretensions of the proprietaries, and, therefore, was deemed the most suitable person to represent the grievances of the colony to the crown.

Before, however, resorting to this step, he was first instructed to appeal to the proprietaries to effect, if possible, an arrangement with them, in which, by mutual concessions, the two opposing parties might settle upon terms acceptable to both. He found them in no disposition to enter into such an arrangement, and appealed to the government through the board of trade. Unfortunately for the success of his mission, the public attention was too keenly directed to the wars then agitating the continent, to allow it to rest on the wants or interests of a distant colony, whose importance was but little felt by the English Government. The only measure he could prudently adopt in this uncertain posture of affairs, was to employ suitable counsel to appear before the board of trade whenever it should suit their convenience, to take the case into consideration, and quietly await the issue.

In the meantime, taking advantage of this moment of leisure, he sought to employ it by paying a visit to the site of his humble, yet cherished ancestral halls, the details of which are given in that portion of the autobiography, already quoted,

aching upon the genealogy of his family. In this journey had the kindness of heart to seek out every person, however humble, who had the slightest affinity by blood to himself, and the magnanimity to acknowledge the humbleness of these relationships. It is likewise told of him, that he rendered more substantial aid to those who stood in need of such services, which he has not seen proper to record.

It was thought by the counsel a very important matter to test public opinion on the side of the colonists, and to defend them from the abuse and false aspersion heaped upon them with no unsparing hand by those who were either personally interested, or secondarily so through the proprietaries. For the purpose of effecting this object, "*The Historical Review of Pennsylvania*," was published in the early part of the year 1790, and from the style and ability it displayed, was immediately attributed to Franklin, who neither denied nor acknowledged publicly its authorship, which long remained a subject of doubt, although generally conceded to Franklin.

A letter from Franklin to Hume, recently brought to light through the indefatigable researches of Mr. Sparks, denies pointedly the authorship, and puts that question at rest, so far as he is concerned. Ralph, who had now won considerable reputation as a political writer, and had obtained an income of three hundred pounds a year, and whom Franklin speaks of in a letter to his wife, as a person "well respected people of value," was charged with the authorship; but, however the original writer, it is very certain that it was prepared at the suggestion of, and supervised and amended by Franklin.

About the time of its publication, the degree of Doctor of

Laws was conferred upon him by the University of St. Andrews, in Scotland. The presentation of this degree, was accompanied by an urgent invitation to visit Scotland, he did not feel himself at liberty to decline. On this visit, which took place during the ensuing summer, he was for some time a guest of Lord Kames, and became acquainted with most of the eminent men of Scotland, among whom were the celebrated historians, Robertson, Hume, and Watson. In whatever direction he travelled, he received marks of the most unbounded attention, not the least flattering among which, were the freedom of the cities of St. Andrews and Edinburgh. In alluding to this visit afterwards in a letter to Lord Kames, he adds, "On the whole, I must say, I think the time we spent there was six weeks of the *densest* happiness I have met with in any part of my life."

An event occurred in the following year, which brought the affairs of the colony before the Board of Trade in rather an unexpected manner. Governor Denny, either from conviction that the grounds of the proprietaries were unjust to the colonists, or worn out by long repeated and harassing opposition, at last yielded his assent to a bill for raising one hundred thousand pounds by taxation, in which the estates of the proprietaries were placed on the same footing with those of the colonists. This law, with several others, was warmly opposed by the proprietaries, who used every exertion in their power to prevent the sanction by the crown, necessary to give them validity. The case was argued at great length before the Board of Trade, by able counsel employed on both sides, and was decided in June, 1760, in favor of the law taxing the proprietary estates, giving to the Governor, however, in com-

mon with the Assembly, a voice in the disposition of the money raised under it.

The historical review, which had been quietly effecting its purpose on public sentiment, and the ready arguments Franklin's superior information enabled him to put into the mouths of the Assembly's counsel, had a very great influence in effecting this decision.

Although Franklin's attention was mainly directed to the political affairs of the colony, for whose benefit he had visited England, yet he found time occasionally to prosecute his scientific investigations, and correspond on such subjects with his scientific friends. At an early period of his residence in England, he addressed a letter by his request, to Sir John Pringle, a surgeon of great eminence, and afterwards President of the Royal Society, on the effects of electricity in paralysis. As great cures are professed to have been lately performed by electricity and electro-magnetism, the result of observations may not be uninteresting. "The first thing observed," writes he, "was an immediate greater sensible warmth in the lame limbs that had received the stroke than in others, and the next morning the patients usually related that they had in the night felt a prickling sensation in the flesh of the paralytic limbs; and would sometimes show a number of small red spots, which they supposed were occasioned by the prickings. The limbs, too, were found more capable of voluntary motion, and seemed to receive strength. A man for instance, who could not the first day lift the lame hand off his knee, would, the next day, raise it four or five inches, the third, higher, and on the fifth day, was able with tolerable languid motion, to take off his hat. These appear-

ances gave great spirits to the patients, and made them hope a perfect cure : but I do not remember that I ever saw any amendment after the fifth day, which the patient perceiving, and finding the shocks pretty severe, they became discouraged, went home, and in a short time relapsed, so that I never knew any advantage from electricity in palsies, that was permanent." We apprehend that these cautious and candid observations of Franklin will be confirmed by the experience of every intelligent practitioner of medicine, who has had occasion to witness the effects of electricity in nervous diseases.

He likewise made some experiments on the electrical peculiarities of the tourmalin, which he communicated in a letter to Dr. William Heberdeen, a distinguished physician, well known by his elegant medical commentaries. The two specimens of this fossil subjected by Franklin to experiment, were the property of Dr. Heberdeen, the largest of which was presented by him to Franklin.

Before detailing the results of Franklin's experiments, it may be proper to state that the tourmalin is a silicious fossil, occurring like schorl, to which it is closely allied, in primitive rocks, but is distinguished from it by its colors, and its greater lustre, the schorl being black, while the tourmalin is found of various dark shades of brown, red, green and blue, and of a very brilliant lustre. Some of these are exceedingly beautiful, and on that account, are used in ornamental work, as gems. Its chrystals possess all shades of transparency, from nearly opaque to the most perfect clearness : its fracture is conchoidal, its hardness greater than that of quartz, another silicious fossil, and its specific gravity 3.5. It is more

commonly found in the island of Ceylon, than elsewhere, but is likewise frequently met with in the East Indies, and occasionally in other portions of the globe. Its components, according to Vauquelin, are silice 40, argil 39, lime 3.84, oxide of iron 12.5, oxide of manganese 2.

It was first brought to Europe by some Dutch navigators from the island of Ceylon, who called it *aschentrikker*, from its power of attracting ashes when thrown into the fire, but it appears to have been known as far back as the time of Theophrastus, who describes it under the name of *lyncurium*. The first detailed account made to a scientific body of its properties was by M. Lemery, in 1717, who exhibited a tourmalin to the Royal Academy of Sciences at Paris, and described some of its electrical properties.

Æpinus procured two of these stones, with which he made a variety of experiments, published in the history of the Academy of Sciences and Belles Lettres, at Berlin, in 1756, in which he states that the tourmalin is always endowed with a positive and negative electricity at the same moment, these different states being confined to opposite sides of the fossil.

He could produce these opposite states of electricity most readily, by plunging the stone in hot water. If one side of the stone was heated more than the other, each side acquired electricity opposite to that which was natural to it, but regained its natural state when left to itself.

If the tourmalin were so placed that one of its sides was in contact with a conductor connected with the earth, and then rubbed, the side excited by friction would be positive, and

the other negative, but if no conductor was used, both sides became positive.

These experiments were afterwards repeated by Dr. Wilson, in England, with a more complete apparatus than that used by Æpinus, confirming his experiments in the main, but concluding, in opposition to the opinion expressed by him, that when the sides of the tourmalin were unequally heated, the species of electricity displayed was that of the hottest side; thus, if the negative side was heated, the whole stone became negative, and vice versa.

Mr. Canton in a paper communicated to the Royal Society in December, 1759, developed the important principle that the tourmalin emits and absorbs electric fluid in a direct ratio to the increase or diminution of its heat.

He likewise divided a tourmalin into three parts, taking one part from the positive and one from the negative end. When these pieces were heated, he found on cooling, that the outer side of the end of the positive part of the stone was positive, and that the negative side was negatively electrified, whilst the middle portion was electrified one way or the other, just as if it had never been divided.

Franklin attempts to account for the different results obtained by different experiments, by supposing that the stones were improperly cut by the lapidaries, and adds, "I have had the large one new cut, so as to make both sides alike, and find the change of form has produced no change in power, but the properties remain the same as I found them before. It is now set in a ring, in such a manner as to turn on an axis, that I may conveniently, in making experiments, come at both sides of the stone. The little rim of gold it is set in,

as made no alteration in its effects. The warmth of my finger, when I wear it, is sufficient to give it some degree of electricity, so that it is always ready to attract light bodies.

"The following experiments have satisfied me that M. *Æpi-*s's account of the positive and negative states of the opposite sides of the heated tourmalin, is well founded.

"I heated the large stone in boiling water. As soon as it was dry, I brought it near a very small cork ball, that was suspended by a silk thread. The ball was attracted by one side of the stone, which I call A., and then repelled.

"The ball in that state was also repelled by the positively charged wire of a vial, and attracted by the other side of the stone, B.

The stone being fresh heated, and the side B. brought near the ball, it was first attracted and presently after, repelled by that side. In this second state it was repelled by negatively charged wire of a vial.

Therefore, if the principles now generally received, respecting positive and negative electricity, are true, the side A. of the large stone, where the stone is heated in water, is in a positive state of electricity, and the side B. in a negative state."

It has been alleged that Franklin was somewhat instrumental in changing the theatre of the war betwixt England and France, to the French possessions, and that the taking of Quebec by Wolf, and the final reduction of Canada, grew out of measures strenuously advocated by him before the government of the government in London, in an unofficial manner. Whether this be true or not, his pamphlet on the subject of Conquest of Canada, at the close of that war, as a British pro-

vince, undoubtedly, did more to effect that purpose, than any of the numerous publications made in its behalf at the time.

In a letter written to Lord Kames, on the subject of this annexation, to the British possessions in America, he makes this far-sighted and statesman-like observation, "I have long been of opinion that the foundations of the future grandeur and stability of the British empire lie in America, and though like other foundations, they are low and little now, they are, nevertheless, broad and strong enough to support the greatest political structure that human wisdom ever yet erected. I am therefore by no means, for restoring Canada. If we keep it, all the country from the St. Lawrence to the Mississippi, will, in another century, be filled with British people; Britain itself, will become vastly more populous, by the immense increase of its commerce; the Atlantic sea will be covered with your trading ships; and your naval power thence continually increasing, will extend your influence round the whole globe, and awe the world."

Little did Franklin imagine while depicting the future prosperity of that empire, whose boast now is that the sun never sits upon its possessions, that he was unconsciously fashioning the first stone in the edifice, since grown into such goodly proportions in our national confederation. A separate government at that time had never entered Franklin's mind, and long after, when conversing with Pitt, on the subject of a revolt, he "assured him, that having more than once travelled almost from one end of the continent to the other, and kept a variety of company, eating, drinking, and conversing with them freely, he never had heard in any conversation from any person, drunk or sober, the least expression of a wish for

separation, or hint that such a thing would be advantageous to America."

The business which brought him to London having been terminated, he now began to think seriously of returning to his native land. He had not remained thus long in England without securing to himself many warm friends, who looked on his departure with great regret, and endeavored by any flattering inducements to prevent his return. His affections, however, were centered in his home, in the rude colony of Pennsylvania, from which all the blandishments of a refined society of a great city and gay court could not ban him. He left England on the 17th of August, 1762, and arrived at Philadelphia on the first day of the following November, after an absence of upwards of five years. Immediately before his departure, the Universities of Edinburgh and Oxford conferred upon him separately the degree of Doctor of Laws, besides which he received very warm letters of recommendation from Hume, Lord Kames, Robertson, and a large number of other distinguished men, whose regard he had won by his exalted intellectual qualifications, united to great simplicity and gentleness of manner. His son, who had accompanied him, likewise bore with him on his return, the commission of Governor of the colony of New Jersey.

For the services he had rendered abroad, not only to the colony of Pennsylvania, but to the American provinces in general, he was warmly appreciated, and testified by a vote of thanks passed by the Legislature, and another granting him three thousand pounds for his expenses whilst engaged in its service. Notwithstanding the favorable construction put upon the measures for raising revenue by the crown, the proprietaries by an

ambiguity in its language, managed to obtain a very considerable advantage in the rating of their taxable property. In the opinion given by the crown, it was stated "that the located uncultivated lands of the proprietaries shall not be assessed higher than the lowest rate at which any located uncultivated lands belonging to the inhabitants shall be assessed," which the Governor claimed as a right to tax the best lands of the proprietaries no higher than the most worthless of the inhabitants.

Franklin, who had been elected to a seat in the Assembly prior to his return, warmly opposed this construction, and finding that the warfare betwixt the Governor and the Legislature waxed as warm as ever, was instrumental in getting up a petition for relieving the grievance in a summary mode, by soliciting the crown to interpose its authority, and dispense with the proprietary Governor, as provided under the charter. To this petition three thousand signatures were attached, and after a warm and acrimonious debate, it passed the Assembly. On this occasion, the speaker, Mr. Norris, who had always been a warm advocate for the rights of the Assembly, and opposed to the claims of the proprietaries, fearing the apparent revolutionary tendency of the resolutions, declined voting for them, and resigned his seat. Franklin was elected to fill his post as speaker, and in that capacity signed the resolutions. The question of levying a stamp duty on the colonies had excited public attention and called forth resolutions in opposition to the measure by the various colonial Legislatures, one of which passed that of Pennsylvania. The signing of this was among the last of Franklin's acts as speaker.

The party who favored the proprietary side of the question

was violently opposed to the measures taken by Franklin to procure redress, and anticipated from them nothing but evil. The strife had grown very warm in the Assembly, and was continued in the succeeding elections with so much zeal that Franklin lost his election by about twenty-five votes. He had been elected consecutively to the Assembly for fourteen years, without ever having solicited a vote, and in the contest in which he lost his election he did not deviate from his usual custom: this gave his opponents, who were busy in influencing the minds of voters, a decided advantage over him. They now supposed their triumph complete, and that they had fairly rid themselves of an able and dangerous opponent. But it was of short duration, for the Assembly, on convening, finding a majority of two or three in favor of the resolutions, introduced one appointing Franklin an agent to present their grievances before the king.

The discussion which arose on this resolution, clearly showed that he had not been thus long in public life, without exciting a large number of bitter opponents, who seized this opportunity to express, in no measured terms, their disapprobation of his private as well as his political sentiments. Nor were his friends less zealous in sustaining him, and after a protracted debate, marked by great malignity and unnecessary warmth on both sides, succeeded in obtaining the passage of the resolution by a small majority. When on the eve of embarking on his new mission, he addressed a letter to his daughter, in which he thus alludes to these political feuds. You know I have many enemies, all indeed, on the public's account, (for I cannot recollect that I have, in a private capacity, given just cause of offence to any whatever,) yet they

are enemies and very bitter ones, and you must expect their enmity will extend, in some degree, to you, so that your slightest indiscretions will be magnified into crimes, in order the more sensibly to wound and afflict me. It is therefore the more necessary for you to be extremely circumspect in all your behaviour, that no advantage may be given their malevolence."

On the 7th of November, 1764, a few days after the passage of the resolution, he left Philadelphia, accompanied by a large number of his personal friends, to embark at Chester, for England, where he arrived after a passage of about thirty days, and domesticated himself once more with his old friend, Mrs. Stevenson, in Craven street, London.

We have stated, that one of the last acts performed by Franklin, as Speaker of the Assembly of Pennsylvania, was to sign the resolutions of that body condemning the Stamp Act, contemplated by the British government, as an unlawful infringement upon their privileges. The manner in which this subject came before the Assembly, is thus related by Franklin. "Some time in the winter of 1763-4, Mr. Grenville called together the agents of the several colonies, and told them that he proposed to draw a revenue from America, and to that end, his intention was to levy a stamp duty on the colonies, by an act of Parliament, in the ensuing season, of which he thought it fit, that they should be immediately acquainted, that they might have time to consider, and if any other duty equally productive would be more agreeable to them, they might let him know it. The agents were therefore directed to write this to their respective Assemblies, and

communicate to him the answers they should receive; the agents wrote accordingly."

He was the bearer of the answer of the Pennsylvania Assembly to the government, and was likewise instructed to use every exertion in his power to prevent the passage of the measure. Nor was the colony he represented alone in this protest, for the others with great unanimity of opinion, agreed that it was a great infringement of their rights not only as colonists, but as Englishmen, the British constitution protecting them from taxation by a body in which they were not represented. An opinion in which they were ably sustained

Pitt, as the leader of the opposition party in the House of Commons.

All opposition however, was unavailing, and the government, with a determination to subdue the refractory spirit of the colonies, insisted upon its passage. It was passed accordingly, and fashioned subsequent events betwixt the mother country and its American dependencies, in a manner little anticipated by its projectors. Before this period it had been the universal custom to make a requisition on the colonies for such aid as government desired, stating the purpose for which it was required, and asking them to take it into consideration, clothed with respectful language, and expressing the confidence placed by the government in the patriotism and affection of the colonies for the home government. These demands had always been met; but they were unwilling to comply by compulsion, what they would cheerfully have yielded to courtesy. This had been distinctly stated by Burke in the House of Commons, if not to Lord Grenville, at least in his hearing. He thought whatever legal right Par-

liament had to enact such a law, it was far more prudent in "a government exercising sovereignty over different kinds of people, to have some regard to prevailing and established opinions among the people to be governed, wherever such opinions might, in their effects, obstruct or promote public measures," than to attempt to rouse their angry passions by harsh and coercive means.

The intense excitement and burst of indignant feeling that pervaded the American colonies on the receipt of the news of the passage of the stamp act, are too well known to be related here. The British government clearly saw that it had gone too far, and now attempted to retrace a step which, if prosecuted, seemed fraught with imminent peril, and if retracted, to furnish an acknowledgment of their want of strength to carry it into effect. It was on the occasion of the attempt to repeal this act, that Franklin appeared before the House of Commons as a witness. He had never before occupied so eventful a position, and in no one did he acquit himself with more consummate ability. His exalted reputation, his frank and urbane manner, and his perfect acquaintance with every thing relating to American interests, served to give the greatest weight to his testimony, which went far towards producing the repeal of the act so odious to his countrymen.

But the flame of discord had been kindled, and although its smouldering fires were for a time kept under by the repeal of the stamp act, yet they were ever and anon stirred into a blaze by some indiscreet act on the part of the British government, which with a sort of wounded pride, at the concession it felt itself forced to make, was incessantly aiming to

abridge the right of the colonies and secure in other and more indirect modes, the right of taxation so strenuously resisted.

He gives an account of his mode of living, as well as an insight into his pecuniary affairs at this period, in the annexed extract from a letter to his wife :

“ For my own part I live here as frugally as possible not to be destitute of the comforts of life, making no dinners for anybody and contenting myself with a single dish when I am at home ; and yet such is the dearness of living here in every article, that my expenses amaze me. I see, too, by the letters you have received in my absence, that yours are very great ; and I am very sensible that your situation naturally brings you a great many visitors, which occasions an expense not easily to be avoided, especially when one has been long in the practice and habit of it. But when people’s incomes are lessened, if they cannot proportionably lessen their outgoings, they must come to poverty. If we were young enough to begin business again, it might be another matter ; I doubt we are past it, and business not well managed is one faster than no business. In short, with frugality and prudent care we may subsist decently on what we have, and leave it entire to our children ; but without such care we shall not be able to keep it together ; it will melt away like sugar in the sunshine, and we may live long enough to feel miserable consequences of our indiscretion.”

Taking advantage of the interval of quiet succeeding the repeal of the stamp-act, Franklin, accompanied by his friend John Pringle, paid a visit to Paris, where he was received with marked attention by the royal family, and the different learned societies of the French metropolis. His reputation,

as a distinguished philosopher, and eminent diplomatist, had preceded him, and although he visited it for the first time, he found himself surrounded by warm friends and devoted admirers. In a letter addressed to Miss Stevenson, descriptive of this visit, he gives the following account of his presentation at the French court: "We went to Versailles last Sunday, and had the honor of being presented to the King; he spoke to both of us very graciously and very cheerfully, is a handsome man, has a very lively look, and appears younger than he is. In the evening we were at the *Grand Couvert*, where the family sup in public. The table was half a hollow square, the service gold. When either made a sign for drink, the word was given by one of the waiters; *A boire pour le Roi*, or, *A boire pour la Reine*. Then two persons came from within, the one with wine and the other with water in *carafes*; each drank a little glass of what he brought, and then put both the *carafes* with a glass on a salver, and then presented it. Their distance from each other was such, as that other chairs might have been placed between any two of them. An officer of the court brought us up through the crowd of spectators, and placed Sir John so as to stand between the Queen and Madame Victoire. The King talked a good deal to Sir John, asking many questions about our royal family; and did me too the honor of taking some notice of me; that is saying enough; for I would not have you think me so much pleased with this King and Queen, as to have a whit less regard than I used to have for ours. No Frenchman shall go beyond me in thinking my own King and Queen the very best in the world, and the most amiable."

He was soon recalled to his post by the steps taken in Bos-

ton against the revenue act, which they conceived to be as oppressive and unjust as the one recently repealed, and which they sought to evade by refusing to purchase the articles introduced into the country under it where it could possibly be avoided.

The passage of the revenue law called out the "Farmer's Letters," written by Mr. Dickinson, who had opposed Franklin's appointment as the agent of the colony. Franklin had these letters re-printed in England, with a preface of his own. They urged with great ability the necessity for the refusal to purchase goods imported. Nor did Franklin hesitate to urge upon his friends at home, a strict compliance with their resolutions to interdict imported goods. "By persisting steadily in the measures you have so laudably entered into," writes he a committee of Philadelphia merchants, "I hope you will, backed by the general honest resolutions of the people to buy British goods of no others, but to manufacture for themselves, or use colony manufactures only, be the means under God, of recovering and establishing the freedom of our country tire, and of handing it down complete to posterity."

In addition to the affairs of Pennsylvania, he had been appointed by the colonies of New Jersey, Georgia and Massachusetts, as agent to represent their interests at London. His position with the members of the cabinet was a very exalted one, and he was universally regarded by them as a person of profound ability and unwavering integrity. The friendly relations maintained by him with the higher functionaries of government, gave rise to the belief that he was to receive a high official appointment, which we have reason to believe, would have been nothing loth to accept, although he feared

he was looked upon as "too much of an American," to be selected for any prominent position, by the home government, and indeed, had grounds to fear that he might not long retain his present official position of Postmaster General.

We leave him, however, to speak of this subject for himself, which he does in a very explicit manner, in the following letter to his son, written in June, 1768 :

"I purpose now to take notice of that part, wherein you say it was reported at Philadelphia I was to be appointed to a certain office here, which my friends all wished, but you did not believe it for the reason I had mentioned. Instead of my being appointed to a new office, there has been a motion made to deprive me of that I now hold, and, I believe, for the same reason, though that was not the reason given out, viz : my being too much of an American ; but, as it came from Lord Sandwich, our new Postmaster General, who is of the Bedford party, and a friend of Mr. Grenville, I have no doubt that the reason he gave out, viz : my non-residence, was only the pretence, and that the other was the true reason ; especially as it is the practice in many other instances, to allow the non-residence of American officers, who spend their salaries here, provided care is taken that the business be done by deputy or otherwise.

"The first notice I had of this was from my fast friend Mr. Cooper, secretary of the treasury. He desired me, by a little note to call upon him there, which I did ; when he told me, that the Duke of Grafton had mentioned to him some discourse of Lord Sandwich's, as if the office suffered by my absence, and that it would be fit to appoint another, as I seemed constantly to reside in England ; that Mr. Todd, secre-

ry of the post office, had also been with the Duke, talking the same purpose, &c.; that the Duke had wished him (Mr. Cooper) to mention this to me, and to say to me, at the same time, that, though my going to my post might remove an objection, yet, if I chose rather to reside in England, my merit was such in his opinion, as to entitle me to something better here, and it should not be his fault if I was not well provided for. I told Mr. Cooper, that, without having heard an exception had been taken to my residence here, I was fully preparing to return home, and expected to be gone in a few weeks; that, however, I was extremely sensible of the Duke's goodness, in giving me this intimation, and very thankful for his favorable disposition towards me; that, having lived long in England, and contracted a friendship and affection for many persons here, it could not but be agreeable to me to remain among them some time longer, if not for the rest of my life; and that there was no nobleman, to whom I could, with sincere respect for his great abilities and amiable qualities, cordially attach myself, or to whom I should so willingly be obliged for the provision he mentioned, as to the Duke of Devon, if his Grace should think I could, in any station where he might place me, be serviceable to him and to the public.

Mr. Cooper said, he was very glad to hear I was still willing to remain in England, as it agreed so perfectly with his intentions to keep me here; wished me to leave my name to the Duke of Grafton's as soon as possible, and to be at the Treasury again the next board day. I accordingly called at the Duke's and left my card; and when I went next to the Treasury, his Grace not being there, Mr. Cooper carried me to

Lord North, chancellor of the exchequer, who said very obligingly, after talking of some American affairs, 'I am told by Mr. Cooper, that you are not unwilling to stay with us. I hope we shall find some way of making it worth your while.' I thanked his Lordship, and said I should stay with pleasure, if I could any ways be useful to government. He made me a compliment and I took my leave, Mr. Cooper carrying me away with him to his country-house at Richmond, to dine and stay all night."

During the summer of 1768, Lord Clare was very unexpectedly removed from the head of the board of trade to the treasury of Ireland, and Lord Hillsborough was entrusted with the affairs of the colonies as first commissioner, with the title of Secretary of State. "This change," Franklin writes to Mr. Galloway, "was very sudden and unexpected. My Lord Clare took me home from court to dine with him but two days before, saying he should be without other company, and wanted to talk with me on sundry American businesses. We had accordingly a good deal of conversation on our affairs, in which he seemed to interest himself with all the attention that could be supposed in a minister who expected to continue in the management of them. This was on Sunday, and on the Tuesday following he was removed. Whether my Lord Hillsborough's administration will be more stable than others have been for a long time, is quite uncertain, but as his inclinations are rather favorable towards us (so far as he thinks consistent with what he supposes the unquestionable rights of Britain,) I cannot but wish it may continue."

But however auspicious to the welfare of the colonies Lord Hillsborough's appointment appeared to be, in the eyes

f Franklin, it eventuated very unfavorably for them, and personally unpleasant to Franklin himself. The intercourse betwixt them was at first conducted with much courtesy on both sides. But Lord Hillsborough entertained opinions about the "unquestionable rights of Britain," very different from those of the inhabitants of the colonies, or their Assemblies represented by Franklin. Irritated by their continued opposition to the restraints imposed upon them by the government, and especially by their marked hostility to the revenue laws, and the officers appointed to put them into execution, he sought to subdue their refractory spirit by a rigid execution of the late acts of Parliament, and believing that the agents of the Assemblies, who were usually arrayed against the governors of the colonies, were the most formidable agents in the way of their faithful performance, he exerted himself with the board of trade, to obtain the passage of a resolution forbidding any agent to appear before them, unless appointed by the co-ordinate branches of the colonial government, as well as the Assembly.

About the time of the passage of this resolution, Franklin received an official notification of his appointment as agent for the colony of Massachusetts, to appear for "the House at court of Great Britain, before his Majesty in council, or either House of Parliament, or before any public board." With this notification he waited upon Lord Hillsborough, to inform him of his appointment; Lord Hillsborough questioned its validity, and broached to Franklin for the first time, his opinions as to what was necessary in order to give validity to the acts of the colonial agents. Franklin attempted to reason with him on the impropriety of his opinions, alleging

what Hillsborough well knew, that in the discontented state of the colonies, it would be impossible for the legislative and executive branches of the colonial governments to select an individual who would be the true exponent of both. He was however, uncompromising, and expressed with some warmth the opinion, that the agents were the chief fomenters, of the discords, agitating the colonies. The debate assumed an angry tone on both sides, and they parted, any thing but friends.

During the summer succeeding this interview Franklin made a tour through Wales, Ireland and Scotland, in each of which he was received with the most marked attention by his numerous friends. Whilst in Dublin he met Lord Hillsborough—who had retired from London to his estates in Ireland, to recreate for a short period from the duties of his office—at a dinner to which he was invited, given by the Lord Lieutenant. His Lordship was exceedingly profuse in his compliments, and invited Franklin and his party to call at his house on their tour, which he thought proper to accept. They were at his house four days, and were entertained by him with the most uncommon civility. This surprised Franklin, who could not account for the especial civility bestowed on him in particular, inasmuch as a short period before they left London, Hillsborough spoke of him as a “factions, mischievous fellow.”

“He seemed,” says Franklin, “attentive to every thing that might make my stay in his house agreeable to me, and put his eldest son, Lord Killwarling, into his phaeton with me, to drive me a round of forty miles, that I might see the country, the seats and manufactures, covering me with his

own great-coat, lest I should take cold. In short, he seemed extremely solicitous to impress me, and the colonies through me, with a good opinion of him; all of which I could not but wonder at, knowing that he likes neither them nor me."

After Franklin had returned to London, he waited on Lord Hillsborough to thank him for his civilities; but "the porter," adds he, "told me he was not at home. I left my card, went another time, and received the same answer, though I knew he was at home, a friend of mine being with him. After intermissions of a week each, I made two more visits, and received the same answer. The last time was on a levee day, when a number of carriages were at his door. My coachman driving up, alighted, and was opening the coach door, when the porter seeing me, came out and surlily chid the coachman for opening the door before he enquired whether my lord was at home, and then turning to me said, 'my Lord not at home.' I have never since been nigh him, and we have only abused one another at a distance."

This nobleman did not long continue at the head of American affairs. The immediate cause of his resignation was attributed by Franklin, to the course taken by the council, in reversing his report on the Ohio settlement, mainly brought about by a lucid and able paper written by himself, in opposition to it. Franklin, writing to his son says, that Mr. Todd, who he met at Lord Le Despencer's, and "who has some attachment to Lord Hillsborough, in a walk we were taking, told me as a secret, that Lord H. was much chagrined at being out of place, and could never forgive me for writing that pamphlet against his report about the Ohio."

His lordship was never a popular man among his colleagues,

who gladly availed themselves of the opportunity afforded by his decision on the Ohio question, to force him to a resignation. He was succeeded by Lord Dartmouth, who had always been a warm friend of the colonies, and moreover, entertained a high personal regard for Franklin. Under his administration the colonial agents were restored their former privileges, and wiser and more conciliatory counsels seemed about to prevail.

We have hitherto followed the subject of these remarks, through a long and varied career of usefulness and eminent distinction, in which from the humblest beginning he rose to one of the most elevated positions in life, with fewer enemies, and a larger number of personal friends than falls to the lot of most men. We are now about to narrate briefly, a circumstance that caused him, notwithstanding the consciousness of the rectitude of his conduct, a great deal of uneasiness, and subjected him to much false representation and personal indignity.

Governor Hutchinson and Lieutenant Governor Oliver, of Massachusetts, had written to Thomas Whatley, at one time a secretary to one of the ministers, and then a member of Parliament, a number of private letters, which Franklin became possessed of in a mode he has never divulged. Thinking that these letters were insidious, contained false representations, and were calculated to affect injuriously the relation of the colonies with the mother country, he transmitted them to Mr. Cushing, in December, 1772, with permission to show them to a few friends, but neither to take copies, nor to allow them to be published.

The letters were, contrary to his instructions, produced in

the Assembly, and called forth a series of resolutions directing Franklin to procure the dismissal of Hutchinson and Oliver from their post, accompanied by a petition to the king to that effect. Lord Dartmouth was at his country seat when this petition arrived. Franklin immediately despatched it to him, and on his lordship's return to town, was told by him that it had been presented to the king.

The letters which gave rise to this petition were published and sent to London, where they produced considerable excitement, and eventuated in a duel betwixt Mr. Whatley, the son and executor of the gentleman to whom they were addressed, and Mr. Temple, who was accused by the former of having fraudulently obtained them. This duel resulted in Mr. Whatley's receiving a slight wound. In this posture of affairs Franklin published a card, acknowledging that he had transmitted them, and exculpating Mr. Temple.

The petition of the Assembly, asking the displacement of the Governor and Lieutenant Governor, came up for hearing on the 11th of January, 1774. Dr. Franklin and Mr. Bollaert appeared for the accusation, and Mr. Mauduit and Mr. Wedderburn, for the defence. After the reading of the address and several other documents, Mr. Wedderburn remarked, that the address mentioned certain papers; he asked to be informed what those papers were. Franklin replied that they were the letters of Hutchinson and Oliver. The court asked if they were present. Franklin remarked that they were not, but that they had attested copies of them. The court desired to know of Franklin if he intended to found a charge upon the letters; so, it would be necessary to produce them. Mr. Wedderburn remarked that they did not desire to take advantage of

any imperfection in the proof. They admitted that the letters were those of Hutchinson and Oliver, but they reserved to themselves the right of enquiring how they were obtained. Franklin stated that he had not expected that counsel would be employed. The court asked Franklin if he had not received notice of Mr. Mauduit desiring to be heard by counsel on behalf of the accused. Franklin replied that he had, but that he thought it a matter of politics rather than of law. After some further conversation, Franklin desired three weeks to procure counsel. The case was accordingly deferred until the 29th.

On this occasion thirty-five Lords were in attendance, besides a large number of spectators. The case was opened by Mr. Dunning and Mr. Lee, two eminent barristers, as counsel for the Assembly, who contented themselves with placing it before the council, upon the facts as alleged in the Assembly petition. They were followed by Mr. Wedderburn, afterwards Lord Loughborough, the king's counsellor, an advocate of eminent abilities, and peculiarly sarcastic powers, in a speech of great ability and force. The burden of this speech was to show that these letters being private and confidential, could not have come into Franklin's possession by any fair method, and therefore that he was highly culpable in putting them to the use he did. In the performance of this task, all his peculiar powers as an orator, were put into requisition, regardless of Franklin's feelings, "who stood there the butt of his invective ribaldry for near an hour," with "a countenance as immovable as if his features had been made of wood."

The Assembly's counsel attempted a reply, but in so feeble

in manner as to afford Wedderburn a complete and signal triumph. We have before stated that Franklin was never placed in any position in which he acquitted himself so ably as before the bar of the House of Commons, and we may now add, that he never was placed in one so humiliating as on the present occasion. It would be impossible at this time, to decide upon the propriety of the course pursued by him in making these papers public, and yet, in allowing his memory to rest under the doubt, which the secrecy with which he chose to enshroud the manner in which they were obtained, invested it, nor does it appear necessary for us to give an opinion on that subject. We have only to remark, that the circumstance was exceedingly inopportune for Franklin's exposure of mind, and had he anticipated the result that followed, we doubt not he would have adopted some less objectionable method of apprising the Assembly of the secret movements of their Governor, than the one resorted to by him. The council decided in favor of Hutchinson and Oliver, and the day following, Franklin was informed that his services as Postmaster General, would henceforth be dispensed with.

Franklin was fully prepared for this event, as he had previously received information from a reliable source, of the intention of the ministry to disgrace him, and that Wedderburn would be employed for that purpose, and indeed, had an intimation that it was in contemplation to seize his papers, and imprison him in Newgate. If such a purpose was ever seriously entertained by the government, it was never acted upon.

From the time of the affront given me at the council held, in January, 1774," writes Franklin, "I had never attended the levée of any minister. I made no justification of

myself from the charges brought against me ; I made no return of the injury by abusing my adversaries ; but held a cool and sullen silence, reserving myself to some future opportunity, for which conduct I had several reasons not necessary here to specify. Now and then, I heard it said, that the reasonable part of the administration was ashamed of the treatment they had given me. I suspected that some who told me this, did it to draw from me my sentiments concerning it, and perhaps my purposes, but I said little or nothing upon the subject. In the meantime, their measures with regard to New England failing of the success that had been confidently expected, and finding themselves more and more embarrassed, they began, as it seems, to think of making use of me, if they could, to assist in disengaging them. But it was too humiliating to think of applying to me openly and directly, and therefore it was contrived to obtain what they could of my sentiments through others."

The negotiations growing out of this attempt of the ministry to secure the good offices of Franklin, are detailed in one of the most interesting communications that ever flowed from his pen, addressed to his son, while on ship-board, immediately after their unsuccessful termination. He was well assured that the time for pacific intercourse had passed ; for although, as he remarked to Mrs. Howe, sister to Lord Howe, afterwards in command of the British forces in America, the two countries had really no clashing interests to differ about, and the Americans had always expressed a willingness, and were still ready to meet the mother country on any reasonable terms, yet the opposition of the king and ministry to the people of the colonies was such, as to preclude the possibility of

air acceding to any proposals so conciliatory as to be acceptable to the colonists. Nevertheless whilst the faintest hope of averting a war, which now seemed inevitable, existed, he felt it to be his duty to seize upon it, and if possible, to pour oil into the wound which had been permitted to fester and irritate for so many years.

He accordingly, at the urgent request of Mr. Barclay, seconded by that of his old and well tried friend, Dr. Fotherell, prepared a series of terms, in the shape of hints for consideration, seventeen in number, embracing the principal matters in dispute, to which the colonists would assent. These hints were presented afterwards to the ministry, but the concessions were too humiliating, and after much cavilling, they were finally rejected.

The anxiety manifested by Franklin to avert the rupture, the ministry seemed blindly bent upon bringing about, did not arise from any fears of the ultimate evils it might entail upon the country, for several years previous, in a letter intercepted from the government, written to Lord Kames, he remarks: "Upon the whole, I have lived so great a part of my life in Britain, and have formed so many friendships in it, that I love it, and sincerely wish it prosperity, and therefore wish to see that union on which I think it can be secured and established. As to America, the advantages of such an union to her are not so apparent. She may suffer at present under the arbitrary power of this country; she may suffer for a while in a separation from it, but these are temporary evils which she will outgrow. Scotland and Ireland are differently circumstanced. Confined by the sea, they can scarcely increase in numbers, wealth and strength, so as to overbalance

England. But America, an immense territory, favored by nature with all the advantages of climate, soils, great navigable rivers, lakes, &c., must become a great country, populous and mighty ; and will, in less time than is generally imagined, be able to shake off any shackles that may be imposed upon her, and perhaps place them on the imposers. In the meantime, every act of oppression will sour their tempers, lessen greatly, if not annihilate the profits of your commerce with them, and hasten their final revolt, for the seeds of liberty are universally found there, and nothing can eradicate them. And yet there remains among that people, so much respect, veneration and affection for Britain, that if cultivated prudently, with a kind usage and tenderness for their privileges, they might be easily governed still for ages, without force, or any considerable expense. But I do not see here a sufficient quantity of the wisdom that is necessary to produce such a conduct, and I lament the want of it."

Yet, although Franklin had good reasons to doubt the wisdom that governed the ministerial party, with respect to America, he found among the ablest leaders of the opposition, wise heads and cool judgments, warmly espousing the cause of the colonies, and willing to grant every right demanded by them. Among the foremost of these, both as regards the fervor with which he espoused their cause, and the consummate ability he brought to bear on the subject, was Mr. Pitt, with whom Franklin became intimately associated in a friendship which lasted to his dying day.

While Pitt was at the head of the ministry, Franklin had on repeated occasions, sought his acquaintance, but without success. "He was then," Franklin says, "too great a man,

r too much occupied with affairs of greater moment. I was therefore obliged to content myself with a kind of non-apparent and unacknowledged communication through Mr. Potter and Mr. Wood, his secretaries, who seemed to cultivate an acquaintance with me by their civilities, and drew from me that information I could give relative to the American war, with my sentiments occasionally on measures that were proposed or advised by others, which gave me the opportunity of commending and enforcing the utility of conquering Canada. afterwards considered Mr. Pitt as *inaccessible*. I admired him at a distance, and made no more attempts for a nearer acquaintance."

This occurred in the year 1757, soon after Franklin's first rival in England as an agent for Pennsylvania. While on visit to his friend Mr. Sargent, at Halsted, in August, 1774, he was informed that Pitt desired to see him, and that it had been arranged that Lord Stanhope should carry him next day to Hayes, Pitt's residence. In accordance with this arrangement he visited Lord Chatham on the following day, who received him with marked attention, and turned the conversation most immediately to American affairs, in which he expressed himself warmly their friend.

In the course of this interview, Pitt alluded to the prevalent opinion that America aimed to establish her independence of British rule, to which Franklin replied, "that having more than once travelled almost from one end of the continent to the other, and kept a variety of company, eating, drinking and conversing with them freely, he had never heard, in any conversation from any person, drunk or sober, the least expression of a wish for a separation, or hint that such a thing

would be advantageous to America." On parting, Franklin promised to apprise Pitt of any thing new he might receive concerning America.

In the following December, he received a letter enclosing the petition of Congress to the king. It had been stated before this petition arrived, that this body was an illegal one, and therefore that the king could entertain no petition from them, but after its arrival Franklin lost no time in waiting on Lord Dartmouth with it. After taking a day to consider upon it, during which time a cabinet council was called, he informed Franklin that it was a respectful paper, and that he would place it before the king. He afterwards informed Franklin, that his majesty was disposed to receive it very graciously, and would lay it before Parliament at its meeting, on the 19th of January, 1775. Franklin now began to entertain well grounded hopes that a change of policy was about to occur in regard to American affairs, and anticipated the dawn of a brighter day; but these hopes were of short duration, for on the assembling of Parliament, the king made no mention of the petition in his speech, and although it was sent to Parliament, it was enclosed with many more papers on different matters, so that no immediate notice was taken of it.

In the meantime, Franklin despatched a copy of it to Pitt, and seized the first moment he could appropriate to such a purpose, to pay a visit to him, and confer personally upon its contents. A week was spent in attendance upon Lord Dartmouth, and in consultation with the other colonial agents, before he found himself at liberty to visit his noble friend.

At length, on the 26th of December, he left town, and arrived at Hayes at about one o'clock. His reception by Lord Chat-

him was of the most cordial and agreeable kind, and the opinion expressed by that distinguished statesman, of Congress, was even more gratifying to the feelings of his learned guest, than the marked attentions bestowed personally upon himself. "They have acted," said Pitt, "with so much temper, moderation and wisdom, that he thought it the most honorable assembly of statesmen, since those of the ancient Greeks and Romans, in the most virtuous times."

On the very day of the assembling of Parliament, Franklin received a note from Lord Stanhope, informing him that it would introduce a resolution into the House of Peers, on the following day, relating to America, and desired his attendance. The next day his lordship acquainted him by note, that if he would be in the lobby at two o'clock, Lord Chatam would himself introduce him. Franklin attended at the appointed hour, and on mentioning to Mr. Pitt what had occurred betwixt Lord Stanhope and himself, that nobleman replied, "certainly, and I shall do it with the more pleasure, I am sure your being present at this day's debate, will be more service to America than mine." He accordingly, took Franklin by the arm, and was proceeding to the door near the one, when one of the door-keepers informed him that none of the eldest sons or brothers of Peers, were allowed to enter that door. "On which," says Franklin, "he limped back with me to the door near the bar, where were standing a number of gentlemen waiting for the Peers who were to introduce them, and some Peers waiting for friends they expected to introduce, among whom he delivered me to the door-keepers, saying aloud, 'This is Dr. Franklin, whom I

would have admitted into the house,' which was immediately done."

On this occasion Pitt introduced his motion to address a petition to the king, asking him to cause the troops under General Gage to be withdrawn from Boston, in order to open the way to "a happy settlement of the dangerous troubles in America," a copy of which was communicated by Lord Stanhope to Franklin, at Pitt's request, and by him forwarded to Congress. The presentation of the copy of this motion to Franklin, called forth a reply, in which he thus expresses himself in regard to this remarkable statesman. "Dr. F. is filled with admiration of that truly great man. He has seen, in the course of life, sometimes eloquence without wisdom, and often, wisdom without eloquence: in the present instance he sees both united, and both as he thinks, in the highest degree possible." The ministry had a decided majority, especially on all subjects antagonistic to America, and the motion was rejected.

A few days afterwards, Lord Mahon, Pitt's son-in-law, waited on Franklin with a request from Lord Chatham, to give him an audience as soon as convenient, as he greatly desired to see him on important business. Franklin accordingly took a post chaise on the following Friday, and went to Hayes, whither Pitt had gone, immediately after the close of the debate on his motion. The meeting betwixt those two great men was very cordial on both sides. During a long conversation in which Pitt engaged him, he showed Franklin the draft of a law relating to America, upon which he desired his opinion, stating that he had shown it to no one else except Lord Camden, nor did he intend to do so before its

resentation; and he desired Franklin to remain secret upon the matter, lest publicity might injure its effect.

On Sunday, Pitt came to town with his bill prepared for representation, and called upon Franklin with it, at his residence in Craven street. "He stayed with me," says Franklin, "near two hours, his equipage waiting at the door, and being there while people were coming from church, it was much taken notice of, and talked of, as at that time was every little circumstance that men thought might possibly in any way affect American affairs. Such a visit from so great a man, on so important a business, flattered not a little my vanity, and the honor of it gave me the more pleasure as it happened once every day twelve months, that the ministry had taken so much pains to disgrace me before the Privy Council."

On Wednesday, the 1st of February, Lord Chatham introduced his bill. He sent Lord Stanhope to Franklin to accompany him to the House of Lords, which was very full. The measure was sustained by Pitt in a speech of great power and eloquence. When he was seated, Lord Dartmouth remarked that it contained much grave matter for consideration, and he therefore hoped their lordships did not expect to decide upon it immediately, but would let it lie on the table for consideration, to which Lord Chatham readily assented. At this juncture, Lord Sandwich took the floor, and in a speech with much vehemence and ill feeling, said that he could not believe the bill before them to be the production of any British minister, but rather the work of some American, and turning his back full towards Franklin, he continued, that he fancied he had his eye fixed on the person who drew it up, "one of the vilest and most mischievous enemies this country had ever

known." This attracted the attention of all eyes towards Franklin, who stood leaning against the bar, but who appeared to look as unconcerned as if the remark was made for any one else rather than himself.

Lord Chatham, in reply to this insinuation, avowed the plan to be wholly and entirely his own, and stated that he was the more particular in making this explanation, inasmuch as their lordships appeared to entertain so mean an opinion of it.

The bill was sustained by the Dukes of Richmond and Manchester, Lord Shelburn, Lord Camden, and others, but the ministerial party voted it down without even allowing it to lie upon the table. Even Lord Dartmouth, when one lord expressed his approbation of the candid manner in which that minister proposed to treat the measure, said, that since he had heard the opinion of so many noble lords against receiving it, he was fain to alter his mind, and should give his vote for its immediate rejection.

Franklin now supposed that the last link of friendly connexion betwixt the government and the colonies had been severed, and feeling that his residence in London could be productive of no benefit to his constituents, prepared to carry into execution his long contemplated plan of returning to America. He was invited, however, two or three days afterwards to meet Mr. Barclay at Dr. Fothergill's and was greatly surprised to learn that the ministry were not much averse to his propositions, and at their suggestion, although with small hopes of success, made such modifications as it was thought might be agreed upon; at the same time he was shown the comments of the ministry on his own proposals.

was enforced on him, how necessary it was for America to come to an understanding, as it would be an easy matter for the British fleet to enter and burn all her sea-port towns, upon which he grew warm, and said, the greater part of his small property consisted in houses in these towns, which they might set on fire when they saw fit, but that it could never shake his resolution to resist the power of Parliament to alter their constitutions at their pleasure, and render unsafe the privilege the colonies enjoyed under them.

Several interviews followed betwixt Lord Howe, Lord Franklin and himself, in the course of the ensuing few weeks; but the demands of the government continued so unreasonable, as to leave little hope of the adjustment of their difficulties. In the meantime, Lord North introduced and carried through, a motion which it was thought would be acceptable. Lord Franklin expressed a similar hope for the result of the motion; but Lord North told him plainly, that it would not be acceptable in America, and "that the proposition was similar to no mode of obtaining aids that ever existed, except that of a highwayman, who presents his pistol and hat at a coach window, demanding no specific sum, but if you will give him all your money, or what he is pleased to think sufficient, he will willingly omit putting his own hand into your pockets; if not, he is his pistol."

A short time before he left London, he attended at the House of Lords, to hear Lord Camden on the American question, and became so disgusted with the "base reflections on American courage, religion and understanding," indulged by the ministerial party, that he wrote under the influence of high excitement a memorial to be presented to Lord Dart-

mouth, which he handed to his friend Thomas Walpole, a member of the House of Commons, to peruse. Walpole looked at the memorial and then at its author several times, as if apprehensive that he had lost his senses, so different was it from his usual cautious and cool method of writing. He undertook to show it to Lord Camden, and get his opinion upon it, and returned it in a note the next day to Franklin, saying, that it was thought that it might be attended with dangerous consequences to his person, and the cause of America ; so it was never presented, and he finally closed a mission with the English government, in which he was opposed by some of the ablest statesmen that nation ever produced, in a manner, if not satisfactory to his cause, at least in one marked by the most consummate ability and skill as a diplomatist and statesman.

During the voyage betwixt London and Philadelphia, which was undertaken on the 21st of March, 1775, and terminated by his arrival at Philadelphia, on the 5th of the following May, his ever active mind was employed in writing out an account of his negotiations in London, just closed. In addition to this self imposed, but highly important task, he made a series of observations on the temperature of the sea water, and was the first to ascertain the elevated temperature of the gulf stream, since fully confirmed by abundant observations and experiments.

Before he had reached Philadelphia the imprudent zeal of the Governor of Massachusetts, in the cause of the crown, had set the colonies into a blaze by the affair at Lexington, in which, by the most unwarranted usurpation of power, the lives of a number of citizens had been sacrificed in a struggle,

induced by the overbearing aggression of the British forces. This was the crowning act in the measures of the ministry and its officials, intended to sever the affection of the colonists from the mother country, and those who had felt the oppression of the government, and yet whose loyalty prevented them from advocating an open rupture, were no longer in doubt, but as if by one common impulse, the cry of war was resounded from one end of the continent to the other.

Franklin, on the day after his arrival, was unanimously chosen by the Assembly as a delegate in the second Congress, which assembled at Philadelphia, in four days afterwards. The most important period in the whole history of America, had now arrived. It was to be determined whether the colonies should engage in an unequal and desolating warfare, by attempting to throw off the yoke which had hitherto oppressed them, or tamely submit to the grievances so long and yet so impatiently borne. Franklin was not one of those to hesitate in meeting this question, nor had he any doubts as to the ultimate success of the colonists, however much they might suffer in the beginning.

There were others less sanguine, whose timidity induced them to pause, and calculate the odds against them before rousing the formidable anger of the British lion. The debates of Congress were full of the sense of injustice under which the colonists supposed themselves to be laboring, by the unconstitutional acts of the home government. One party being in favor of immediate hostile action, while the other was anxious to supplicate the government by renewed petition for the removal of the causes of their disaffection. To the former, was yielded the power to place the colonies in a state of de-

fence, to the latter, permission to present a petition to the king.

The permission to petition was allowed somewhat reluctantly by Congress, to satisfy the earnest solicitations of John Dickinson, but against the wishes of a majority of that body, who conceived that their dignity might be lessened by again resorting to petition, after the contemptuous manner in which their former one had been received. Franklin was one of the committee appointed to prepare a draft of this paper, but it was written by Mr. Dickinson, and with some difficulty carried through Congress, thus giving "Britain," in the language of Franklin, "one more chance, one more opportunity of recovering the friendship of the colonies."

"My time," continues the letter from which the above extract is made, "was never more fully employed. In the morning at six, I am at the committee of safety, appointed by the Assembly to put the Province in a state of defence, which committee holds till near nine, when I am at Congress, and that sits till after four in the afternoon. Both these bodies proceed with the greatest unanimity, and their meetings are well attended. It will scarce be credited in Britain that men can be as dilligent with us, from zeal for the public good, as with you, for thousands per annum."

In addition to these onerous duties, he was appointed by Congress as Postmaster General, and charged with the important task of re-organizing this branch of the public service. In the performance of this duty he was delegated with extensive powers to establish such post roads and appoint such deputies as he might see fit.

When General Washington, a few months later, assumed

the command of the army, Franklin was selected, with two others, as a committee to visit the commander-in-chief, and advise with him on the most effectual manner of establishing an army to meet the emergency. He was likewise appointed a commissioner of Indian affairs, and in addition was chosen by the city of Philadelphia, as one of its delegates in the Provincial Assembly. So that there was probably no public personage of the time who had so many and such multifarious political occupations, or whose services were so eagerly sought for, or so much relied upon as Franklin.

In the spring of 1776, he was appointed one of three commissioners by Congress, to visit Canada, in order to regulate their military operations, and assist them in forming a civil government. The commissioners left Philadelphia on the 20th of March, and after experiencing unusual hardships, from the inclemency of the weather, and the meagerness of accommodations, arrived at Montreal about the beginning of May. The object of their journey proving fruitless, Franklin left Montreal on the 11th of May, and reached Philadelphia early in June.

The period of his arrival was most auspicious, as Congress were soon after engaged on a subject of greater importance than any which had heretofore been brought before them. This was the discussion of a resolution introduced by Richard Henry Lee, of Virginia, under instructions received from the legislature of the colony of Virginia, declaring the independence of the American colonies. Franklin was one of the committee appointed to prepare a declaration of their sentiments. The declaration was written entirely by Jefferson, and reported by the committee without alteration.

While it was under discussion, Franklin who was seated near Jefferson, and was much annoyed by the alterations made in the draft, remarked to him, "I have made it a rule, whenever in my power, to avoid becoming the draftsman of papers to be reviewed by a public body. I took a lesson from an incident which I will relate to you. When I was a journeyman printer, one of my companions, an apprenticed hatter, having served his time out, was about to open a shop for himself. His first concern was to have a handsome sign-board with a proper inscription. He composed it in these words, *John Thompson, Hatter, makes and sells hats for ready money,*" with a figure of a hat subjoined. But he thought he would submit it to his friends for their amendments. The first he showed it to, thought the word *hatter* tautologous, because followed by the words *makes hats*, which showed he was a hatter. It was struck out. The next observed, that the word *makes* might as well be omitted, because his customers would not care who made the hats; if good, and to their mind, they would buy, by whomsoever made. He struck it out. A third said he thought the words *for ready money*, were useless, as it was not the custom of the place to sell on credit. Every one who purchased, expected to pay. They were parted with, and the inscription now stood, 'John Thompson sells hats.' 'Sells hats?' says his next friend, 'why, nobody will expect you to give them away. What then is the use of that word?' It was stricken out, and *hats* followed, the rather as there was one painted on the board. So his inscription was reduced ultimately to *John Thompson*, with the figure of a hat subjoined."

Sometime previous to the signing of the Declaration of In-

dependence, which took place on the 4th of July, 1776, Franklin, as one of the committee of secret correspondence, had written to his friends abroad, and particularly to Mr. Dumas, at the Hague, to ascertain whether the different governments of Europe would be likely to afford aid to America in her struggle with England. After the enunciation of this document it was thought advisable to appoint three commissioners to France, to procure aid from that government, which it was thought their animosity to England, might facilitate. Franklin was selected as one of these commissioners, his colleagues being already in Europe. He embarked on the sloop of war, *Reprisal*, about the last of October, and arrived at the mouth of the Loire in about thirty days. Here a considerable detention was rendered necessary by his advanced age, and the state of his health, so that he did not reach Paris before the 21st of December, where he found his colleagues, Mr. Deane and Mr. Lee. He soon after took lodgings in a house in Passy, near Paris, where he prepared to enter at once into the business of his mission.

Franklin's distinguished reputation as a philosopher and statesman, made his arrival a matter of the greatest importance in the French metropolis. The representative of popular government, and the author of one of the most brilliant discoveries in science, honors were heaped upon him with a profusion which seemed to know no limit. Not only learned societies and people of station strove to do him homage, but the mass vied with each other in their unlimited adulation, so that wherever he appeared his presence was greeted with the liveliest emotions of pleasure. Pictures, busts, and prints of him were sold in astonishing numbers, and medallions of sizes

to set in rings and snuff boxes, with the inscription of Turgot: "*Eripuit calo fulmen, sceptrumque tyrannis,*" were every where to be met with.

"By the effect which Franklin produced in France," says the historian Lacretelle, "one might say that he fulfilled his mission, not with a court, but with a free people. Diplomatic etiquette did not permit him often to hold interviews with the ministers, but he associated with all the distinguished personages who directed public opinion. Men imagined they saw in him a sage of antiquity, come back to give austere lessons and generous examples to the moderns. They personified in him the republic of which he was the representative, and the legislator. They regarded his virtues as those of his countrymen, and even judged of their physiognomy by the imposing and serene traits of his own. Happy was he, who could gain admittance to see him in the house he occupied at Passy. This venerable old man, it was said, joined to the demeanor of Phocian, the spirit of Socrates. Courtiers were struck with his native dignity, and discovered in him the profound statesman."

Although the French government could not openly receive the American commissioners, as such, in the face of the treaty entered into between them and the English, yet it resolved secretly to furnish the aid they desired to carry on the war with England. Before Franklin's arrival, Mr. Deane, his colleague in the commission, had procured and shipped to America, a large amount of munitions of war, with a million of livres secretly advanced to Beaumarchais, to be thus expended.

On the 4th of January, 1777, Franklin informed the secret

committee, that he had arrived in Paris about two weeks before, and had been joined by his fellow commissioners, with whom he had had an audience with Count de Vergennes, the minister, by whom they were respectfully received. "The cry of this nation," he adds, "is for us, but the court, it is thought, views an approaching war with reluctance."

In this latter surmise, however, Franklin was in error, for the French government only waited an opportunity to recognize the independence of the United States, and enter into a treaty with them on such a footing as should be agreeable to both parties and durable in its character. In the meanwhile, it furnished an additional loan of two million of livres, said at the time to be that of a generous individual, and seized the first defeat of the British troops, to enter into an alliance, which was most honorably and nobly maintained by that government.

After this treaty had been signed, Franklin and the other commissioners were formally presented to the king, at Versailles, and afterwards attended at court on the same footing as the representatives of other powers. Auberteuil says, that Franklin was accompanied by a great number of Americans, and individuals from various countries, to Versailles, on the occasion of this presentment. "His age, his venerable aspect, the simplicity of his dress, every fortunate and remarkable circumstance in the life of this American, contributed to excite public attention. The clapping of hands, and other expressions of joy, indicated that warmth of enthusiasm which the French are more susceptible of than any other people, and the charm of which is enhanced to the object of it, by their politeness and agreeable manners. After this

audience, he crossed the court on his way to the office of the minister of foreign affairs. The multitude waited for him in the passage, and greeted him with their acclamations. He met with a similar reception wherever he appeared in Paris."

After serving in this capacity until the year 1781, he asked leave of his government to retire, urging his advanced age and bodily infirmities as the reason for making such a request. "I have," adds he, in a letter to the President of Congress, in which he makes this request, "been engaged in public affairs, and enjoyed public confidence in some shape or other, during the long term of fifty years, an honor sufficient to satisfy any reasonable ambition; and I have no other left but that of repose, which I hope the Congress will grant me, by sending some person to supply my place."

Congress declined to comply with his request, and he was retained in his place, and finally concluded, with consummate ability, in conjunction with the other commissioners sent over for that purpose, a treaty of peace, far more favorable to his country than the English government at the commencement, ever thought of granting.

While engaged in these important public duties, he did not lose sight of scientific investigations. He contributed an able paper on the electrical phenomena of the Aurora Borealis, since confirmed by ample observations, to the Academy of Sciences at Paris. He was likewise associated with Lavoisier, Bailly and Jessieu, in the celebrated royal commission to investigate the claims of animal magnetism, then just getting into vogue, of whose report it is properly remarked by Bertrand, that no unprejudiced person can fail to partake of the opinions of the celebrated men who were parties to its adoption.

After a residence of upwards of eight years in France, he was relieved at his own urgent request, by the appointment of Mr. Jefferson, as his successor, and immediately prepared to return to his native country. The amount and importance of the public business entrusted to his hands during this period, far exceeds that ever given in trust to any other ambassador from this country; and although he did not escape the envy and detraction of enemies at the time, yet public opinion has long since awarded to his diplomatic actions, the highest order of statesmanship, and the most unwavering integrity.

He had, for some time, been a sufferer from two afflicting maladies, the gout and the stone. An attack of the former of these, gave rise to his amusing article, in which he holds an imaginary conversation with his tormentor, which furnishes a view of the life he led at Paris.

The pain induced by the jolting of a carriage was such, that he availed himself of the offer of the Queen's litter, and set out from Passy in this conveyance for Havre-de-Grace, on the 12th of July, 1785. At Southampton, where he remained some days, he met many of his old English acquaintances, who cordially welcomed him once more to English territory. He likewise had an interview here with his only son, the first for ten years, and became apparently reconciled to the course he had taken in sustaining the English side of the question in the American revolution, but from the tenor of his will, made some years afterwards, it would appear that he never fully forgave him for this step.

When he arrived at Philadelphia, he was met by a large concourse of his fellow-citizens, who carried him in triumph, to his house, where he was waited upon by the most eminent

personages in Philadelphia, among whom was General Washington. The Assembly of Pennsylvania, the American Philosophical Society, and the University of Pennsylvania, each hastened to make to him appropriate addresses of welcome on his return home.

Whatever dreams of retirement from public duties he had indulged, were not speedily to be realized, for he was chosen in the October following his return to Philadelphia, President of Pennsylvania, and continued to hold that office, under an annual election, during the period of three years, limited as to term of eligibility by the constitution Franklin himself had been instrumental in framing.

When the convention assembled for the purpose of forming a constitution for the United States, in 1787, he was returned as one of the delegates from Pennsylvania, and although far advanced in years, and infirm in body, he felt himself called upon by the importance of the subject, to devote his time almost exclusively to the business of the convention.

He had been one of the first to suggest the plan of confederation among the colonies, and from an intimate knowledge of the opinions of the inhabitants of most of them, he had long before satisfied himself that nothing short of absolute necessity could induce them to part with any of their privileges for the general good. This absolute necessity arose in the united defence the colonies felt themselves called upon to make against a common foe, but no sooner was their independence achieved than their old jealousies and prejudices returned, and every state sought to conduct its own government in the manner it thought most fit, granting to Congress no powers beyond those of a simple recommendatory char-

acter. They possessed neither the power of raising a revenue or regulating commerce, and although allowed to enter into an alliance with foreign powers, yet they were deprived of the means of making their treaties binding beyond the mere caprice of the state that sought to oppose them. With a commerce left to the tender mercy of European governments, a public credit exhausted, private industry almost annihilated, and dependent upon other nations for manufactures, it was early foreseen that unless some more efficient government was established, the confederation was in danger of falling to pieces from the want of union among its several discordant parts. Two parties sprang up immediately upon the close of the war; one maintaining the necessity for a closer and more extensive confederation among the states than then existed, the other urging the necessity for a dissolution of the confederation as burdensome and unnecessary.

To the former of these parties Franklin belonged, and exerted all his great influence in favor of the adoption of the constitution, which was debated step by step. After the convention had been assembled four weeks without coming to any conclusion in relation to the subject before them, Franklin proposed that the convention should be opened with daily prayers. "When," said he, "we were sensible of danger in our struggle with Great Britain, we had prayers in this room for divine protection. Our prayers were heard, and they were graciously answered." The motion was not carried. A constitution however was adopted by the convention, which, whatever defects its framers may have thought it to possess, has carried the nation to a height of prosperity its most sanguine well wishers could have hardly dared at the time of its

adoption, to anticipate. "I consent," remarked Franklin, in a conciliatory speech at the close of the convention "to this constitution, because I expect no better, and because I am not sure that it is not the best. The opinion I have had of its *errors* I sacrifice to the public good. I have never whispered a syllable of them abroad. Within these walls they were born, and here they shall die."

His term of office as President of Pennsylvania, ceased in the autumn of 1788. At this time he lived in a house he had newly finished in Market street, situated in a court with a garden and several mulbury trees betwixt it and the street. He was surrounded by his six grand-children and their parents, his only daughter and her husband, Mr. Bache.

He was not long permitted to outlive the period of his official duties, yet he was fully prepared for the moment of his dissolution. "For my own personal ease," he writes in a letter to General Washington, in 1789, "I should have died two years ago, but though these years have been spent in excruciating pain, I am pleased that I have lived them, since they have brought me to see our present situation." The stone, from which he suffered, confined him almost entirely to his bed during the last year of his life, and was accompanied by paroxysms of agonizing pain, for whose alleviation it was necessary to administer large doses of opiates. During the intervals of pain, he amused himself with reading or cheerful conversation with his family and the few friends permitted to visit him.

"About sixteen days before his death," writes his physician, Dr. Jones, "he was seized with a feverish disposition, without any particular symptoms attending it, till the third or

fourth day, when he complained of a pain in the left breast, which increased until it became extremely acute, attended by a cough and labored breathing. During this state, when the severity of his pains drew forth a groan of complaint, he would observe that he was afraid that he did not bear them as he ought; acknowledged his grateful sense of the many blessings he had received from the Supreme Being, who had raised him from such small and low beginnings, to such rank and consideration among men, and made no doubt but that his present afflictions were kindly intended to wean him from a world in which he was no longer fit to act the part assigned him. In this frame of body and mind he continued until five days before his death, when the pain and difficulty of breathing entirely left him, and his family were flattering themselves with the hopes of his recovery, but an imposthume which had formed in his lungs, suddenly burst, and discharged a quantity of matter, which he continued to throw up while he had power, but as that failed, the organs of respiration became gradually oppressed, a calm lethargic state succeeded, and on the 17th instant, (April, 1790,) about eleven o'clock at night, he quietly expired, closing a long and useful life of eighty-four years and three months."

His funeral which took place on the 21st, was attended by the Mayor and City Council in a body, the Executive Council and members of Assembly, the American Philosophical Society, and other societies, besides a concourse of about twenty thousand of his fellow-citizens. Amid the waving of flags at half-mast, the discharge of successive volleys of artillery, the tolling of muffled bells, and the solemn tones of martial music, his remains were consigned to the earth, beside those

of his wife's, in the cemetery of Christ's Church, over which have been erected a plain marble slab, according to the directions of his will.

Yet although his quiet and unostentatious grave is marked by no lofty column, or elaborate mausoleum, few names are more vividly remembered, or held in higher veneration than Franklin's. That he was fortunate in the combination of circumstances which surrounded him at his outset in life, cannot be denied, but it required his remarkable self-control and eminent abilities to turn these circumstances to a favorable account. Indeed, we discover in this perfect subjection of self, one of the most striking elements of his successful advancement, and long continued and unwavering prosperity. His youth was marked by no very high aims, nor his manhood by any inordinate ambition for place or preferment, but from early life he had resolved to act well his part, whatever that part might be, and whether in the humble sphere in which his birth had placed him, or in the exalted position to which his talents subsequently elevated him, we find him the same prudent, cautious and sagacious personage. The intellect always in the ascendant—the grosser passions always in subjection.

So completely had he schooled his temperament, that no invective, however severe, or taunt however cutting, could disturb his equanimity, or provoke a retort. Few persons have been unfortunate enough to undergo the severe trial it fell to the lot of Franklin to endure, when in the faithful discharge of his duty, he found it necessary to arraign Governor Hutchinson, and by this means drew down upon himself, the ungentlemanly, but withering sarcasm of Wedderburn, in his

speech before the privy council. Dr. Bancroft, who was present on that occasion says, that "Dr. Franklin's face was directed towards me, and I had a full, uninterrupted view of it and his person, during the whole time in which Mr. Wedderburn spoke. The Doctor was dressed in a full dress suit of spotted Manchester velvet, and stood *conspicuously erect*, without the smallest movement of any part of his body. The muscles of his face had been previously composed, so as to afford a tranquil placid expression of countenance, and he did not suffer the slightest alteration of it to appear during the continuance of the speech, in which he was so harshly and improperly treated. In short, to quote the words which he employed concerning himself on another occasion, he kept his countenance as immovable as if his features had been made of wood."

Nor was he apparently more moved by the unbounded adulation he received from the people and government of France. While welcomed by all classes with the greatest degree of enthusiasm, and every where greeted by the multitude with the most extravagant expressions of delight, he took good care to avoid all mention of this applause, and alluded to it as indifferently as if he had not the least concern in it. We must not conclude from this that he was insensible either to censure or praise, for these impulses are found alike in the breast of every mortal, but that his perfect control over his passions enabled him to conceal these emotions whenever they interfered with the accomplishment of his ends or his notions of propriety.

As a philosopher these traits are strikingly characteristic. After successfully performing a series of electrical experi-

ments which he felt convinced would produce a new era in that branch of science, he seemed perfectly indifferent as to their publicity or fate. They were detailed in a series of letters to an individual who was left at liberty to dispose of them as he might think fit, and were ultimately given to the world without his revisal or knowledge, in a manner purely accidental.

As a man of science his reputation rests not alone on his skill in accurate observation, or the fertility of his invention in the line of experiments, but also upon his power of induction and the discovery of general principles. Although the proof of the identity of electricity and lightning was that which perhaps gave him most eclat in the eyes of the public, yet the general principles which he has expressed in his theory are of much more importance to the cause of science. They give in the compass of a few sentences, not an account of one fact, but the expression of laws of action from which when the conditions are known, thousands of facts may be deduced. It should never be forgotten that the object of science is not the accumulation of mere facts, but the discovery of principles or laws, and that these laws are rendered available in scientific generalization by being briefly expressed in the form of a theory.

It was at one time supposed that the rival theory of Du Faye of two fluids was more susceptible of a mathematical form, but this is not the case. All the results of the mathematical labors which have been bestowed on the theory of Du Faye, are as readily deducible from that of Franklin's, while the physical conception of the latter is much more simple and distinct. It will be recollected that according to this theory

all the phenomena of electricity are produced by the disturbance of the natural state of the equilibrium of one electrical fluid which pervades all bodies; that the atoms of this fluid repel each other and attract the atoms of ordinary matter; that when a body has so much of the fluid that the repulsion and attraction balance each other, the body is said to be in its natural state; that when more than this quantity it is said to be positively electrified; and when less, negatively; and that when in either of these conditions the natural attractions and repulsions do not neutralize each other, and hence result the various phenomena denominated electrical.

This theory is enabled to account for all the appearances of electricity, and in consequence has received the approbation of most, if not all, modern electricians. Indeed up to this time we do not think there are any well established facts directly at variance with it; though in the progress of science a few new postules are required in the way of extending it, so as to embrace some of the discoveries made since his time in galvanism and electro-magnetism. It is true, that the theory as left by Franklin required an amendment, in order to render it logically consistent with all the facts known in his time, but with this amendment, which was made by Cavendish and Æpinus, it is capable of a mathematical expression from which all the facts belonging to statical electricity can be readily deduced in form and in quantity.

REV. JONATHAN EDWARDS.

THE loftiest triumph of Rousseau's genius is said to reside in the manner in which in his "Confessions" he is enabled to make the most disgusting and polluted scenes appear attractive and fascinating, by means of the wonderfully graphic and magic power of his language, and it may of EDWARDS with no less truth be affirmed, that with a style so utterly destitute of beauty as to appear hedious and deformed, he so completely triumphed over the ordinary powers of language by means of the enormous strength of his mind, as to compel the attention of his most polished readers, for the depth of his reasoning alone. If it is true that Rousseau's triumph is the greatest "ever won by diction," it is no less true that that of Edward's is the most splendid ever achieved by the force of reasoning unaided by any of the blandishments of language.

He was the only son of the Rev. Timothy Edwards, a clergyman of the Puritan sect. His mother, whose name was Stoddard, was likewise the daughter of a clergyman of the same persuasion, and is represented as a woman of remarkable intellectual capacity. He had ten sisters, five of whom were older and five younger than himself, from whom many of the most respectable families in the New England states, date their ancestry. He was born on the 5th of October, 1703, in the secluded village of Windsor, on the banks of the Connecticut river. His father was the clergymen of the little

band who sought this lonely hamlet in the midst of an immense wilderness, to free themselves from the religious turmoils which were agitating their native country, and it is not a matter of surprise that his early thoughts should have been highly colored by religious influences. The description he has left in his own hand-writing of the manner in which his tenderest years were spent, and of the devotional musings which formed a part of his youthful existence, seems almost incredible, even for that age of intense religious enthusiasm, and among that people, who treated all levity as an illusion of the evil one, and mingled prayer and religious conversations with their daily avocations.

His father, who appears to have been possessed of superior attainments, gave his personal attention to his preliminary education, in common with that of his elder sisters. He commenced the study of Latin at home when but six years of age, and made such proficiency in it, as well as the Greek, that when he entered Yale College, in 1716, before he had reached his thirteenth year, he was considered as very far advanced in those studies.

Yale College which has for so long a period maintained an elevated position among the classical institutions of America, and claims as its graduates so many distinguished men, was at the time when Edwards became its pupil, a prey to a variety of untoward events, which retarded its progress for years and threatened its final extinction as an institution of learning. One of the principal subjects of discord was its permanent location, several of the New England towns stoutly maintaining their right to it. Among the most prominent of these were Saybrook, Wethersfield, Hartford and New Haven, at

which latter place it was finally located, through the instrumentality of a liberal donation made to it by Mr. Yale, whose name it now bears. The trustees of the college, in accepting this gift, passed a resolution in compliance with the wishes of the donor, fixing upon New Haven as its seat; this was further confirmed by a vote of the colonial legislature about the year 1717. Although its locality was thus established among the waving elms of what has since grown to be the beautiful town of New Haven, it did not recover from the effects of the distractions growing out of this source of animosity, for a number of years afterwards. At the time Edwards commenced his collegiate studies, the students were about equally divided between the towns of New Haven and Wethersfield, thirteen residing in the former and fourteen in the latter place, while its rector, Rev. Mr. Andrews, resided at Milford, of which parish he was pastor. Edwards was among the number who lived at New Haven, but in the year 1717, owing to the unpopularity of the instructors, he joined, together with the entire New Haven class, his fellow students at Wethersfield. In that year eight students of the senior class returned to New Haven to receive their degrees, while five procured them from Wethersfield.

In a letter addressed to his sister in March, 1719, from Wethersfield, he thus alludes to the circumstance of his leaving New Haven: "I suppose you are all fully acquainted with our coming away from New Haven, and the circumstances of it. Since then, we have been in a more prosperous condition, as I think, than ever. But the council and trustees having lately had a meeting at New Haven concerning it, have removed that which was the cause of our coming away, viz:

Mr. Johnson, from the place of tutor, and have put in Mr. Cutler, pastor of Canterbury, president, who, as we hear, intends very speedily, to reside at Yale College, so that all the scholars belonging to our school, expect to return there, as soon as our vacancy after the election is over." The appointment of Mr. Cutler to the presidency of Yale, as anticipated by Edwards, again drew its students thither, and the affairs of the college were placed, for the first time, in a state of prosperity which promised future success. The selection of Mr. Cutler seems to have been a fortunate one for the institution, and he succeeded, as its president, in securing the respect and attention of the students, and the good opinion of the inhabitants of New Haven. Edwards, in a letter to his father from New Haven, dated July, 1719, says, "Mr. Cutler is extraordinarily courteous to us, has a very good spirit of government, keeps the school in excellent order, seems to increase in learning, is loved and respected by all who are under him, and when he is spoken of in the school or town, he generally has the title of president." In the same letter he requests his father, in addition to certain mathematical works and instruments, to send him "The Art of Thinking," which he was "*persuaded would be no less profitable than the other (i. e. mathematical) works necessary.*"

The latter clause in this letter, develops the peculiarity of his mind at this period of his life. He was a thinker, and an abstruse thinker, from a very early period, and endeavored to fortify this faculty by all the aids within his reach. As early as fourteen, when in the second year of his college life, he read, for the first time, Locke's Essay on the Human Understanding, from which he says he derived as much pleasure as

would the most greedy miser, in gathering up some newly found treasure.

This work touched a chord which vibrated through every fibre of Edward's intellectual being, and developed those trains of thought for which his mind seemed peculiarly fitted. It is probable, that like the gifted author of the essay on the human understanding, he possessed precisely that character of mind which fitted him for a metaphysician, and it is equally probable that had circumstances directed his thoughts in another channel, although his great reasoning powers might have enabled him to overcome any difficulties which might have presented themselves to him, yet he never could have attained that distinguished pr eminence which rewarded his labors in the field of religio-mental philosophy. This characteristic of mind is discovered in every thing he ever undertook, from early childhood to his decease—it has furnished the subject for every article that ever flowed from his pen, and it breathes through every page of his voluminous writings.

He accustomed himself at an early age to the use of the pen, although it must be admitted, that from first to last he was never a graceful writer. This defect may, in part have arisen from his puritanical associations, which discountenanced all such display as vain, and in part from a false estimate of his own, of the force of graceful diction, but it is doubtless due in a great measure, to the stern unyielding character of his mind, whose materials were composed of too harsh a fibre, to yield to the graceful modulation of language. Among the earliest of his written productions is a collection of "Remarks and reflections of a religious nature," which together with his diary, he was in the habit of often re-perusing.

He received the degree of Bachelor of Arts in September, 1720, on which occasion he was selected to deliver a Latin Valedictory, and was considered the most promising pupil in the college. He continued at college for two years afterwards, engaged in the study of divinity, and was admitted to the pulpit in his nineteenth year. His first efforts as a pastor, were made at New York, immediately after his reception into the ministry. In this capacity his immense reasoning powers soon elevated him to a high position, and although his religious discourses were wanting in the imagery of glowing language, and attractive eloquence, yet they irresistibly won upon the ear of the dullest listener, and fixed the attention of the most careless observer.

But it is not in his capacity as clergyman, however distinguished he may have been as such, that he now attracts our attention, or claims a place among the eminent literary and scientific men of America. He has far higher and more lasting claims to the consideration of mankind, than any growing out of the ephemeral influences inspired by his clerical duties, and limited to the auditors who chanced to be present at his discourses. Had his efforts been thus limited, his name would long since have slumbered as quietly and unmolested as his ashes now do in the grave to which they were consigned. It is to Jonathan Edwards, the metaphysician, and the author of "An Inquiry into the Freedom of the Will," that the learned world turns, and ever will turn, as one of the ablest reasoners and profoundest thinkers of his age.

His congregation at New York did not long continue to occupy his attention; and after a residence of eight months, he resigned a position which seemed too limited to gratify his

ambition, and returned, although with some lingering feelings of regret at parting with the many kind friends whose acquaintance he formed, to the residence of his father, in Windsor. His resignation took place in April, and the subsequent summer was spent in the severest application to study and writing. His friends in New York, who fully appreciated his high intellectual powers, offered him many inducements to return, but without avail. Many other congregations in New England solicited his aid, but he declined all proffers of the kind made to him, and continued to occupy himself with study, preparatory to the reception of the degree of Master of Arts, which was conferred upon him at the college commencement in 1723. He received at the same time the appointment of tutor, although there was not a vacancy in the college, nor present need for his services. The following year was passed by him in study at New Haven, and in June, 1724, he became associated with the college, by assuming the active duties of the post he had nominally held for some months previous.

At the time when he entered upon the duties of tutor, the institution was without a rector to preside over it, and was involved in a great degree of embarrassment. Its former rector, Mr. Cutler, had abandoned the Puritan worship, and taken refuge in the Episcopalian church. This step produced a great excitement both within and without the college, and soon after led to his resignation. In addition to this, the college discipline was much disordered and the students were turbulent and refractory. The entire management, both of its instruction and government, therefore devolved upon Edwards and two associate tutors, who were about the same age with

himself, all of whom were recent graduates of the institution, at a moment when older heads and more mature judgments seemed necessary to keep its stormy elements at bay. But we have already had occasion to remark, that although young in years he was very far advanced in intellectual powers; and it is probable, that the firmness of purpose and eminent abilities he brought to this emergency enabled the college bark to buffet successfully with the most threatening and tempestuous sea it had ever been its fate to encounter, and suddenly raised it to an elevation more dignified and prosperous than it had at any previous period enjoyed.

His tutorship presents him to us in a new character, and one well worthy of our consideration. We have hitherto, with one brief exception, observed him as a rigid and unbending student, filial in his affections, punctilious in the observance of all the duties of life, and a disciplinarian of the severest kind, so far as his own actions were concerned, establishing for himself a code of regulations bordering on the ascetic, and following them out with a fixedness of purpose which knew no variations. He was now to take part in the active duties of life; duties which required the development of other traits than those which had previously characterized him, for it was not only necessary to impart instruction but to win the confidence and esteem of a boisterous, and of late, unmanageable class of students. This could only be accomplished by pursuing a less exacting course towards them than he demanded of himself, and from the respect and attention which he secured from his pupils, we are warranted in the assertion, that however rigid his self-discipline yet in his

relations with others, he displayed a tenderness of heart and manner which compelled admiration and esteem.

In September, 1726, at the earnest solicitation of his maternal grandfather, united to the appeals of all his friends, he resigned his collegiate position to accept an invitation tendered to him to become his assistant in the charge of the church at Northampton, at that time, on many accounts, the most desirable place within the gift of the Presbyterian church in New England. He was the more readily induced to take this step from the circumstance that the anxiety incident upon the position he had so ably occupied, had impaired his health, and predisposed him to an attack of disease which had kept him confined as an invalid for three months of the previous autumn, and had reduced him to the last extremity, insomuch that his recovery was for a long time considered doubtful. During this illness, which seized him while on his return from New Haven to his father's residence, he was assiduously watched over by his mother, who evinced for him on this as all other occasions, the tenderest affection. Her appeals, in addition to those of her father's, did not long allow him to remain undecided, and caused his separation from the college, after a tutorship of nearly three years, which has always been distinguished for the circumstance of bringing it from a state of insubordination to one of order and extensive usefulness.

His rigid habits of self-discipline, as well as his quaint and peculiar mode of reasoning, are fully exemplified in the following extract from a diary he was accustomed to keep at this period of his life: "I find that when eating, I cannot be convinced in the time of it, that if I should

eat more, I should exceed the bounds of strict temperance, though I have had the experience of two years of the like, and yet as soon as I have done, in three minutes I am convinced of it. But yet when I eat again and remember it still while eating, I am fully convinced that I have not eaten what is but for nature, nor can I be convinced that my appetite and feeling is as it was before. It seems to me that I shall be somewhat faint if I leave off then, but when I have finished, I am convinced again, and so it is from time to time.

“By a sparingness in diet, and eating as much as may be what is light and easy of digestion, I shall doubtless, be able to think more clearly and shall gain time: 1. By lengthening out my life. 2. Shall need less time for digestion after meals. 3. Shall be able to study more closely without injury to my health. 4. Shall need less time for sleep. 5. Shall more seldom be troubled with the head-ache.”

These extracts exhibit the care he took to prevent indulgence in eating, in which all accounts agree that he was remarkably abstemious, nor was he less regular in the disposition of his time. His custom was to rise at four in the morning, and devote the early hours of the day in close application to study. His usual practice was to spend thirteen hours each day in his study, for the most part occupied in developing those trains of thought, and in elucidating those principles which have been treasured up in his various writings. While walking or riding, he usually carried with him a few pieces of white paper, and after having pursued a train of reasoning to its final results, would attach one of the pieces of paper to a particular part of his dress, with a pin, and proceed with a second train of thought, which he would termi-

nate in like manner, so that it was not unusual for him to return after a lengthy walk, with several of these mementoes about his person. On his arrival at home, he would remove one after the other, after writing down the specific chains of reasoning they were intended to recall anew to his mind.

At the age of twenty-three he assumed the duties of the clerical profession, with a devotion which concentrated all the powers of his mind. To the discharge of this duty, he not only brought his great reasoning faculties, but a varied store of learning culled from every department of literature and science, as the accumulation of the unintermitting hours of study to which he had hitherto devoted his life. Mathematics, astronomy, natural science, logic and mental philosophy, each of which had received his most careful consideration, were all made tributary to the absorbing topic of the development of theological phenomena. In this, as in every other subject which drew his attention, he was not content to follow in the paths designated by other men, but submitted their systems, part by part, to the great reasoning powers which so preëminently distinguished him, and frequently found that pillar after pillar of the fabric crumbled away beneath this investigation. He was not satisfied with demolishing the theories of those who had preceded him, but strove to re-construct upon their ruins, a system whose leading principles should date from him.

It is far from our intention to assume that Mr. Edwards desired to distinguish himself as a religious reformer, or aimed at the establishment of a new religious sect. On the contrary, his early associations, the external influences which from childhood had surrounded him, and the impulses of his own

heart, all impelled him to the adoption and strenuous support of the Puritan church, within whose bosom he had been born and educated. On this point he never allowed his mind to entertain a question of doubt, but assumed the correctness of that form of worship as an undeniable truth, in regard to which it would have been sinful to speculate, and once having settled this question, it furnished him with the starting point for his theological investigations. The Presbyterian faith was to be sustained, but much of the reasoning and theology of his predecessors, signally failed to accomplish this object, and he therefore commenced a rigid analysis of every portion of the doctrine on which it grounded its claims, entirely overthrowing many of its strong and seemingly uncontrovertible points, and raising in their stead those positions, which have since come to be acknowledged and sustained, by the ablest divines in that church, as the true exponents of its sentiments and doctrines.

It was with this view, that he prepared and delivered, among others, his famous discourse on the doctrine of "justification by faith alone," some years previous to his appearance as an author, in opposition to the ARMINIANS, who were ably led by the distinguished Dr. Whitby, and had received the support and countenance of the greater part of the most eminent divines attached to that church, as well as its most prominent secular members, among whom were many of his own more immediate and influential relatives, who strongly opposed with much warmth of feeling, this premeditated attempt to scatter seeds of discord in the bosom of the Puritan fold.

The delivery of these discourses was said to have been attended by the most astonishing results, and induced his first

appearance as an author, in his "Narrative of Surprising Conversions," which are believed to have flowed from them. This narrative first appeared in the form of a letter addressed to Rev. Dr. Colman of Boston, who caused it to be published. Its details were afterwards somewhat amplified by Edwards, and in this form it was published in London under the auspices of Rev. Drs. Watts and Guyse, who added to it a preface. In 1735 it was republished in Boston, in connection with the discourses above alluded to. He had, however, at this time made considerable progress in the preparation of his treatises entitled "Notes on the Scriptures," "Prophecies of the Messiah in the Old Testament and their fulfillment," "Types of the Messiah," and his "Miscellanies," all of which were afterwards, at different periods, given to the public.

The first of these discourses, which is a complete and elaborate dissertation on the doctrines of "justification by faith alone," of upwards of one hundred printed pages, may, for its profound train of reasoning, its acute logical deductions, and its abstruse metaphysical speculations, be considered as one of the most successful efforts of his genius, and in these particulars is certainly inferior to no other production from his pen, except his more extensive treatise on the "Freedom of the Will." Indeed in the whole field of dissenting theological discussion, it would be difficult to find any dissertation on doctrinal points so fully established in its results, admitting its premises, as this. And here it may be well to remark, that in the development of any subject under his investigation, he was in the habit of assuming a few propositions, which were simple and readily admitted. From these propositions he proceeded to develop their connexions with such consum-

mate skill and logical precision, that the conclusions were inevitable. He never sought to bewilder his opponents in the cunning mazes of sophistry, but on the contrary seemed to call forth from their lurking places new and apposite relations hitherto concealed, and connect them with his subject with such appropriateness and precision, as to baffle the most subtle and intricate reasoning opposed to him, apparently by the simplest and most obvious processes. The difficulties which had associated themselves with the doctrine of justification in the minds of the members of his church, were so effectually dispelled, under his lucid reasoning, that his views, then new, came to be generally admitted, and his treatise is to this day the universal text book on that subject for the theological students of the Presbyterian persuasion.

But the fourth of these discourses, and the last of the series delivered at the time of "the Surprising Conversions," on "the justice of God in the damnation of sinners," is that which more than all others attracted the author, and was considered by him as the most powerful and effective effort he had ever made as a public speaker.

We have been led to anticipate somewhat the thread of our narrative to which we will now return. Mr. Edwards was married to Miss Sarah Pierrepont, a daughter of the Rev. James Pierrepont, of New Haven, on the 28th of July, 1727. Her mother was the daughter of the Rev. Samuel Hooker, of Farmington, and granddaughter of the eminent Thomas Hooker, of Hartford, designated as "the parent of the Connecticut churches." Miss Pierrepont, who at the time of her marriage was scarcely eighteen years of age, was possessed of uncommon personal beauty, a highly cultivated mind, and

great refinement of manners. From this union, which was founded on the greatest personal esteem as well as warmth of attachment, the most unalloyed happiness continued to flow up to its termination by death.

Edwards's health always delicate, but which under his extremely abstemious course of life, had hitherto sustained him, now began sensibly to decline, and a relaxation from his labors, intellectual as well as pastoral, became absolutely necessary. An intermission of several months, spent with Mrs. Edwards in visiting different portions of New England, restored him sufficiently to enable him to return to Northampton, barely in time to receive the parting blessing of his aged colleague and venerated grandfather, who died in February, 1729, in a ripe old age, lamented and honored for his private worth and his public usefulness. The entire duties of his congregation now devolved upon him, which he discharged with great ability, but which were attended with no circumstance of sufficient note to render this portion of his life of especial interest, until the period of his "Surprising Conversations," to which we have already alluded. This period, as we have heretofore had occasion to observe, was not spent in idleness, but in the assiduous preparation of several of those productions with which his lofty genius has enriched mankind. His position as an eminent pulpit orator had now become so well established, that his services were sought with great eagerness in different portions of New England, and it is probable that at this time there was no divine of his denomination, or perhaps of any other in the colonies, who had obtained such an exalted position as himself. This affords us another evidence of his great reasoning powers. He was

not possessed of an attractive manner, graceful action, or impassioned eloquence, and his writings so far from being adorned by the flowers of imagination, or elegancies of style, were even harsh and repulsive, yet, notwithstanding these obvious defects, his immense powers of intellect enabled him to gain such a mastery over the minds of his auditors, as to compel them to listen to his lengthy doctrinal discourses with the most breathless attention.

In 1742, he again made his appearance as an author, in his "Thoughts on the Revival of Religion." This treatise, which maintained the high character its author had already obtained for scriptural knowledge, and profound theological and metaphysical research, owed its inception to one of those periodical excitements designated as a "*revival*," which began at Northampton, in 1740, and continued to spread with more or less ardor through New England, New Jersey and Pennsylvania, for three years, until, as if worn out by the intensity of its fervor, it subsided into a long and dreamless slumber of nearly seventy years. As might readily be imagined, the excitement it induced, was not confined within those healthy limits, which the more prudent of those who believed in its efficacy, thought advisable. The zeal of an excited crowd of preachers and listeners, had been raised to the highest pitch of enthusiasm, their religious fervor taxed to its uttermost point of endurance, and their bewildered imaginations heightened by the anticipations of an immediate and universal millennium. Their hopes, it is needless to say, were never realized, and the revival so far from being attended by the reformation of morals and exaltation of character its beginning

presaged, continued and terminated amid the greatest irregularity and disorder.

Although this revival began in Mr. Edwards's immediate congregation, it does not appear to have owed its origin to him, but was set afloat by a talented and enthusiastic young clergyman named Buell, during Edwards's absence at Leicester, whither he had gone on a similar, and as it afterwards appeared, successful errand. Mr. Edwards seconded Mr. Buell, both at home and in different parts of New England, and the other Provinces, and at the onset gave the movement his undivided support. But when the mischief to which we have alluded became manifest, and but too surely indicated the disastrous results likely to flow from it, he attempted to stay the torrent, by the publication of his "Thoughts on the Revival," which are remarkable throughout for freedom from excitement, coolness of judgment, and candid reasoning. It was the first work which attempted to elucidate the subject it treats upon, and received at the time of its publication, as well as since, a very extensive circulation. All subsequent authors on this subject are under claims to it for many of their ablest suggestions, and among the students of that school of theology, it is regarded as a text book of the greatest value. His treatise on "Religious Affections," published shortly after the "Thoughts on Revivals," goes over the same ground, and is intended to elucidate the same subject. In the former of these works he examines the effect of religious influences on communities: in the latter, he pursues the same inquiry in regard to individuals; the former is general in its character, and the latter special. Whatever was the immediate or ultimate success of these works, whose consummate

ability no one will pretend to deny, he found that it was much easier to rouse the whirlwind of human passions than to arrest its fury.

His writings, which were almost immediately re-published abroad on their appearance at home, gained him many correspondents among the eminent men of his day, and especially those of the Scottish clergy, whose sentiments were in unison with his own. Of these, no one maintained a higher place in his estimation than the Rev., afterwards, Dr. Erskine, a gentleman of distinguished family, fortune, education and superior attainments, and the colleague in the University of Edinburgh, of Dr. Robertson, the distinguished historian. In a letter to Mr. Erskine, in 1747, he gives the first intimation known, of his intention to engage in the preparation of his elaborate work on the "Freedom of the Will," which has won for him his present exalted position as an author, and placed his name as a metaphysician, by the side of Descartes, Locke, Malebranche and Stewart. This volume was published in 1754, nearly seven years after this announcement to Dr. Erskine, and may, from this circumstance, as well as the evidence presented by the work itself, be considered as his most carefully arranged and labored production—probably the one on which he desired to rest claims to the consideration of posterity.

In sketching the life of Mr. Edwards thus far, we have found it marked by great integrity of purpose, and unruffled by any serious disappointment. But in an evil hour he lent a listening ear to the syren voice of detraction, and under its malign influence, the quiet of the philosopher's study vanished, the usefulness of the divine terminated, even the sacred

torch of friendship was extinguished, and the respected pastor became engaged in a bitter and uncompromising warfare with his hitherto warmest and most devoted friends. The circumstances alluded to, which gave rise to the events we are about to narrate, as a curious matter in the private history of the Puritan church of New England, and as a most unwarrantable assumption of authority by a pastor of that persuasion, we will give as we find them in his memoirs, prepared by his descendant, Mr. Dwight. "Mr. Edwards was informed that some young persons in the town, who were members of the church, had licentious books in their possession, which they employed to promote obscene conversation among the young people at home. Upon farther inquiry, a number of persons testified that they had heard one and another of them, from time to time, talk obscenely, as what they were led to by reading books of this gross character, which they had in circulation among them. On the evidence thus presented to him, Mr. Edwards thought that the brethren of the church ought to look into the matter, and in order to introduce it to their attention, he preached a sermon from Heb. xii. 15, 16: 'Looking diligently lest any man fail of the grace of God, lest any root of bitterness springing up trouble you, and thereby many be defiled; lest there be any fornicator, or profane person as Esau, who for one morsel of meat sold his birthright.' After sermon, he desired the brethren of the church to remain; told them what information he had received, and put the question to them in form, whether the church, on the evidence before them, thought proper to take any steps to examine into the matter? The members of the church, with one consent, and with much zeal, manifested it

to be their opinion, that it ought to be enquired into, and proceeded to choose a number of individuals as a committee of enquiry, to assist their pastor in examining into the affair. After this, Mr. Edwards appointed the time for the committee to meet at his house, and then read to the church a catalogue of the names of the young persons, whom he desired to come to his house at the same time. Some of those whose names were thus read, were the persons accused, and some were witnesses ; but through mere forgetfulness or inadvertence on his part, he did not state to the church, in which of these two classes any particular individual was included, or in what character he was requested to meet the committee, whether as one of the accused, or as a witness.

“When the names were thus published, it appeared that there were but few of the considerable families in town to whom some of the persons named either did not belong or were not nearly related. Many of the church, however, having heard the names read, condemned what they had done before they got home to their own houses, and whether this disclosure of the names, accompanied by the apprehension that some of their own connexions were included in the list of offenders, was the occasion of the alteration or not, it is certain that, before the day appointed for the meeting of the committee had arrived, a great number of heads of families altered their minds, and declared that they did not think proper to proceed as they had began, and that their children should not be called to an account in such a way for such conduct, and the town was suddenly all in a blaze.”

This affair terminated in the signal discomfiture of Mr. Edwards and his informers by the refusal of the principal per-

sons interested to submit to this inquisitorial investigation into their character, on bare, ill defined suspicion. It did not, however, leave Mr. Edwards in the same exalted position in which it found him, but led to additional measures of crimination, which involved him more inextricably in difficulty with each step he took to relieve him from his embarrassed condition. This occurrence took place in the year 1744, and was succeeded by a variety of unpleasant events incident upon the estrangement of the divine from a portion of his flock. Many still clung with lingering affection to the pastor with whom they had been associated for so many years, while others, especially the younger members of his congregation, did not hesitate to express their disapprobation of his proceeding on this as well as on all subsequent occasions. The spark of discord had been kindled, and as ordinarily occurs, great care was taken to prevent its extinguishment for the want of additional fuel. Distrust and coldness marked the conduct of both pastor and people, and every word and action on the part of both become the object of the closest scrutiny, and the subject of the most unkind animadversions.

Mr. Edwards was now led to examine with more scrutiny than he had hitherto bestowed on it, the formula for admitting communicants, which had been in practice not only during his entire connexion with the church, but for upwards of twenty years previous. The conclusion at which he arrived, was that no individual, who did not prove himself to be a *visible* Christian, was entitled to partake of it, and was therefore excluded from all participation in its affairs. This opinion, which was in contrariety to that expressed by his grandfather Stoddard, whose memory was held in high esteem by

the inhabitants of Northampton, he professed to have held from his very first connexion with the church, but which he had up to this moment failed publicly to express. In the spring of 1749, he attempted to bring the matter of dispute between himself and congregation to an issue by a declaration of this change of government, which excited the most lively feeling, and induced his opponents to insist upon his immediate and unconditional dismissal.

Believing that his opinions were not fully understood, he proposed to the appropriate committee of the church to make them known in a series of discourses. This privilege was refused to him, and his dismissal was again urged with greater vehemence than before. They however consented to defer calling a council to decide on his case until he should have had time to write and publish a defence of his opinions. Within the two succeeding months he prepared for publication, "Qualifications requisite to a complete standing and full communion in the visible Christian Church." An instance of celerity in compositions of that class rarely equalled. Some time elapsed before its publication could be accomplished, so that the summer had passed away before its appearance. In the meantime, the congregation waited in a state of the most feverish anxiety for its appearance, not for the purpose of perusing it, which few of them did, but to hasten the action of the council, whose deliberations they hoped would terminate in his dismissal from his pastoral charge at Northampton. Notwithstanding the rapidity with which this work was written, its logical deductions are so obvious, and its arguments so overwhelming to the objections it attempts to refute, that it succeeded in convincing the whole

Puritan church in America of the correctness of its conclusions and continues at the present time to be considered a text-book on that subject to students, although at the time of its appearance, its author stood alone in its defence.

Each party debated the ground step by step, and in the formation of the council it was finally agreed that it should be selected equally, by the pastor and the church, but that he should be confined to the county for his selections except in two churches out of the ten that composed the council, in other words that he might select three churches within and two without the county. After much discussion as to what the council were called upon to determine, a resolution was passed by the church, "That a committee should be called to give us their best advice for a remedy from the calamities arising from the present unsettled, broken state of the church, by reason of the controversy here subsisting concerning the qualifications for full communion in the church; and if upon the whole, of what they see and find in our circumstances, they judge it best that pastor and people be immediately separated, that they proceed to dissolve the relation between them." Mr. Edwards contended that the council were to decide the communion question alone, whereas the church were of a different opinion, and inserted the last clause of the resolution in order to embrace the grounds of dispute five years of incessant warfare had been culminating. The council terminated its discussions 22d of June, 1750. All the churches selected by Mr. Edwards voted for, all selected by the church, against him. One church selected by him failing to send a delegate, his dismissal was decided upon by a ma-

majority of one vote; thus terminated a pastoral connexion he had sustained for nearly a quarter of a century.

Now that the mists of prejudice and personal feeling have been dissipated by the lapse of time since intervened, we are enabled to examine the subject with more candor than could possibly be expected from those whose feelings were intimately interested in the issue, and notwithstanding the anxious care manifested by Dr. Hopkins to preserve the virtues and cover over the faults of an intimate friend and beloved instructor, or the tender solicitude displayed by Mr. Dwight to transmit to posterity the memory of his ancestor, in the most attractive and faultless coloring, we are constrained to believe that this Northampton difficulty presents the weak point in Mr. Edward's life, and stands out from the midst of his many virtues like a dark and threatening cloud over a rich and beautiful landscape.

Nor do we incline to the opinion, that these troubles derived their origin in the misjudged interference which he attempted to use in relation to the works read by the younger people of his congregation. It would be a singular circumstance, if in his relations as a pastor, tales of this sort had not been frequently brought to his attention before by officious persons, and sustained by the equally weighty evidence, that some ascetics had heard fall from the lips of the young and happy, expressions which they chose to characterize as sinful and obscene, and that therefore they must have derived them from the secret perusal of works which the rigid notions of the Puritan fathers proscribed as unlawful. It would be a somewhat curious feature in the private history of New England life, at that period, to know the precise character of

the works which the young people of Northampton were so eager to read, and their pastor was so anxious they should not. As to their character being truly stated in the charge, no one whose vision is not dimmed by prejudice will for an instant believe. This charge bears its own refutation upon its front, and presents the clearest intrinsic evidence of its unfaithful representation. The idea could hardly be entertained for a moment, that the young and virtuous community of the then most refined and polished town in New England, who had hitherto been distinguished for their attention to religious observances, should suddenly have become so debased as to seek to feed a depraved appetite, on improper and immoral reading, and that this reading should have so developed itself in their actions, as to make them the subject of public comment, and yet not attract the attention of their immediate families. Both virtue and vice are plants of slower growth than this, and neither of them are generated and perfected in a single night.

It is evident that Mr. Edwards was in an irritated condition of mind, ready to entertain any proposition which might be laid before him, and he seemed to have been aware of the absurdity of this one, by committing his friends to act in the premises, before laying the whole facts before them; but when it was ascertained that these charges were brought against the members of the most respectable families in Northampton, whose character challenged the assertion, his own immediate friends refused to prosecute charges they believed to be without proper foundation. It is exceedingly probable that the volumes which had found their way into New England, were some of the poetic and dramatic productions now so highly prized, or at worst the works of fiction popular

at the time, which we will admit were not always marked by the greatest propriety of language, but could nevertheless be read by the pure of heart, with no detriment to their moral character.

It will be remembered that in 1740, about one year previous to this occurrence, while Mr. Edwards was at Leicester, his place was occupied by Mr. Buell, whose reputation as an eloquent and successful speaker, had preceded him, and that he had succeeded in setting on foot the "*revival*," of which we had occasion to speak. Now the question very naturally arises, what effect the success of Mr. Buell had upon Mr. Edwards's mind, and whether his zeal in the cause of his divine master was such as to cause him to wish the "*good work*" to proceed, even though he might personally lose reputation by it, or whether there were not some slight feelings of wounded pride, which insensibly to himself were allowed to rankle in his heart, and develop themselves in his actions. We believe Mr. Edwards generally to have been operated upon by the purest and most christian like motives, and to have sustained an elevated and unsullied character, but he had occupied a place of great eminence alone, and it is contrary to all the feelings of humanity to believe, that he could witness his own congregation taken captive, by the very power which had hitherto enabled him to exercise an unlimited influence over them, and bound as trophies to the triumphal car of another, without some of those emotions which in the other departments of life, are known to prey upon the happiness of the man of exalted genius.

But we have something more tangible than mere suspicion to warrant us in the expression of this opinion. In the statement

drawn up by Mrs. Edwards, exhibiting her excessive zeal in religious matters, in referring to this visit of Mr. Buell, she says, "I had a deep and affecting impression that the eye of God was ever upon my heart, and that it greatly concerned me to watch my heart, and see that I was perfectly resigned to God, with respect to the instruments he should make use of to revive religion in this town, and be entirely willing, if it was God's pleasure, that he should make use of Mr. Buell." How great a sacrifice this conclusion cost this pious and exemplary lady, may be judged from the paragraph which immediately follows—"and also that other christians should appear to excel me in christian experience." It is evident from these extracts, that Mrs. Edwards, with all her impassioned fervor in the cause of religion, had serious misgivings in her own mind, as to whether she did not secretly wish God to withhold his influence, rather than to allow his favors to be dispensed by the hand of the rival of her husband for pulpit fame, and it was only after a perfect abnegation of self, that she became willing to allow it to proceed.

We have thus seen, that such feelings as we have suggested, actually did find their abode by Mr. Edwards's fire-side, during the heyday of the religious excitement, and it requires no great stretch of the imagination to suppose, that after this had subsided, and allusions were, from time to time made, especially by the more youthful portion of the congregation, who were more susceptible to the oratory of the young preacher, favorable to him, that they should have engendered irritated feelings, distrust, and a jaundiced state of mind fitting its possessor to believe the extravagant tales which called forth the sermon from the text, Heb. xii. 15, 16.

This denouement, we are told by Mr. Dwight, in his peculiar phraseology, "was the occasion of weakening Mr. Edwards's hands in the work of the ministry, especially among the young people, with whom by this means, he greatly lost his influence," and who steadily and perseveringly opposed him from that period until his dismissal, in 1750. The reason for this dismissal Dr. Hopkins and Mr. Dwight, in their solicitude for the good name of the subject of this biography, inform us, was his peculiar views on communion. That this was the ostensible cause is evident, but the origin lies still deeper and must be traced back to the sermon from Heb. xii. 15, 16.

Mr. Edwards, who was surrounded by a large and expensive family, and who knew that very few of the American churches were enabled to bestow sufficient compensation upon their clergymen, to enable him to live in the manner in which his salary at Northampton enabled him to do, desired most ardently to retain his position. It is hardly probable therefore, that he would have seized upon this particular moment, when the younger members of the congregation were at open hostility with him, and the old supine, to insist upon the introduction of a new and unpalatable doctrine, whose violation he had winked at during his entire ministerial career. He felt that his position in the church was daily growing more insecure, and that the *living* which he was so anxious to retain, as to dispute the ground, inch by inch, with his congregation, long after he knew that a majority of them were in favor of his dismissal, was visibly receding from his hands. With a bold stroke of policy which he felt would be decisive of his fate, he attempted to establish a standard of fellowship

in the church, which would have excluded his opponents, and compelled his congregation to retain him. This was the inevitable tendency of the adoption of his new sentiments; but few would have stood the searching ordeal, and those would have been the aged friends upon whom he depended for support. He failed in his purpose and was dismissed.

He strove with great earnestness to make this the issue before the council, but his church declined thus to confine it, and were so determined upon his dismissal as to refuse to listen to those overwhelming arguments, whose inevitable result to any unprejudiced mind of that faith, would have been decided conviction. Of the two hundred and thirty male members of the church, he informs Dr. Erskine, the greater majority voted for his expulsion, at all events. How much more praiseworthy would it have been magnanimously to have resigned his living, than to be forced from it by such violent contention; and yet we are told that "Edwards's conduct in this controversy, when viewed in all its circumstances, affords one of the most impressive exhibitions of lofty integrity, perfect candor and magnanimity, the world has ever seen."*

We have dwelt at greater length on this passage in the life of Edwards, than our feelings inclined us to do, but while we admire his eminent talents and lofty virtues, we are not blind to his faults—faults which his friends have not only attempted to conceal, but actually to turn into the most heroic virtues; and we have felt it to be our duty, however unwillingly, to declare the conviction which a careful examination of the facts has made upon our mind.

About the close of the year 1750 he received an invitation

* Roger's *Essay on the Genius and Writings of Edwards*, p. 50.

to become the pastor of the church at Stockbridge, an Indian settlement, and at the same time proposals from the agent of the London Society for propagating religion, to take charge of the Indian mission, located at that village, both of which he accepted, and finally removed there with his family. He continued to reside at Stockbridge until 1757, during which time his attention was divided between the duties of his pastoral charge, and his studies. Whilst there, he completed his work on the "Freedom of the Will," which was published in Boston in 1754, and as an important metaphysical treatise, involved him in several controversies, to defend it. After the publication of this work, he commenced the preparation of several other treatises which were afterwards published, among which are "God's Last End in Creation," "Nature of Virtue," and "A Treatise on Original Sin." The managers of the Stockbridge mission, residing in the village were inimical to Mr. Edwards and his ministration, and found the means of involving him in innumerable contentions and difficulties, whose details are unnecessary here. It need only be said, that throughout he manifested an unwavering adherence to the strictest principles of virtue and high toned integrity, and endeavored, by every means in his power, to protect the civil rights of the poor children of the forest, whose spiritual wants were committed to his charge.

This mission never prospered, and the Mohawks, who formed a part of it, after the greatest display of patience, retired to their villages, and abandoned the scheme as an impracticability. It is but an act of justice to Mr. Edwards, to say that the responsibility of the failure of this mission does not lie individually at his door, but was mainly owing to the system itself, which has

been repeatedly tried, and as often found unsuccessful. Those who are acquainted with the history of Indian missions in America, need not be told, that other missionaries sent out under different auspices, found the means of touching the hearts of many of the most formidable chiefs of this powerful and warlike tribe, and succeeded in planting the religion of Christ in many an Indian hamlet on the banks of that beautiful and picturesque stream, whose name, at this day, serves to perpetuate the remembrance of the tribe that peopled its borders, but which a single century has served to dissipate, like the withered leaves of their native forests before the autumn's blast.

Whilst at Stockbridge his third daughter married the Rev. Aaron Burr, at that time President of Princeton College, who died quite suddenly in September, 1757. The vacancy thus created in the presidency of the college was tendered to Edwards, and finally accepted by him after some deliberation as to the propriety of so doing. In a letter addressed to the trustees of the college, in reply to one from them informing him of their selection, among other reasons which induced him to hesitate, he gives some personal peculiarities which are interesting as throwing some light on the private life of a man whose public character is so well known, and so universally esteemed.

"I was not a little surprised on receiving the unexpected notice of your having made choice of me to succeed the late president Burr as the head of Nassua Hall. I am much in doubt whether I am called to undertake the business which you have done me the unmerited honor to choose me for. I might mention the many inconveniences and great detriment

which may be sustained by my removing with my numerous family. So far from all the estate I have in the world (without any prospect of disposing of it, under the present circumstances, but with great loss) now when we have scarcely got over the trouble and damage sustained by our removal from Northampton, and have but just begun to have our affairs in a comfortable situation, for a subsistence in this place, and the expense I must immediately be at to put myself into circumstances tolerably comporting with the needful support of the honors of the office I am invited to, which will not consist with my ability. But this is not my main objection. The chief difficulties in my mind in the way of accepting this important and arduous office, are these two: First, my own defects unfitting me for such an undertaking, many of which are generally known, besides others of which my own heart is conscious. I have a constitution, in many respects, peculiarly unhappy, attended with flaccid solids, vapidizing and scarce fluids, and a low tide of spirits; often occasioning a kind of childish weakness and contemptibleness of speech, presence and demeanor, with a disagreeable dullness and stiffness, much unfitting me for conversation, but more especially for the government of a college. This makes me shrink at the thoughts of taking upon me, in the decline of life, such a new and great business, attended with such a multiplicity of cares, and requiring such a degree of activity, alertness and spirit of government; especially as succeeding one so remarkably well qualified in these respects, giving occasion to every one to remark the wide difference. I am also deficient in some parts of learning, particularly in algebra and the higher parts of mathematics and the Greek classics; my

Greek learning having been chiefly in the New Testament. The other thing is this, that my engaging in this business will not well consist with those views, and that course of employ in my study which have long engaged and swallowed up my mind, and been the chief entertainment and delight of my life."

On his arrival at Princeton, whither he had gone unaccompanied by his family, but where his daughter, Mrs. Burr, was residing, the corporation of the college met and duly installed him in the presidential chair; but he had hardly become seated in his new and honorable position, before he became the victim of a disease, which at that time was spreading its ravages through the principal towns of America. The small pox was then at Princeton, and great fears were entertained lest it should spread extensively. Under the advice of his medical adviser, Dr. William Shippen, he was innoculated with *small pox virus*. The disease at first appeared to be under the control of medicine, but a secondary fever unexpectedly set in which terminated fatally, on the 22d of March, 1758. At the time of his decease he was fifty-four years of age, and in the full possession of intellectual faculties, which promised to the world many splendid achievements. Indeed he had already laid out the plan of a series of investigations, whose development would have engrossed the labor of a long life, and prëminent as his name now stands in connexion with his treatise on "*The Will*," it is more than probable that had his life been spared, in his years matured by reflection but not weakened by age, he might have produced some work that would have surpassed this mightiest effort of his genius,

which Dugald Stewart declares "never was, nor never will be answered."

Edwards's writings, as a whole, display an exceedingly strong and comprehensive memory, great force and perspicuity of thought, and powers of ratiocination equalled by few of that or any other age. These powers, which he possessed in so eminent a degree, were still further strengthened by the most unceasing exertion. His intellectual labors knew no relaxation, and so fixedly had his mind become associated with one branch of enquiry, that his whole existence may be said to have been absorbed in it. His mind, shut out as it were by his processes of abstraction from the contemplation of the external world, seemed to concentrate its whole energies in the analysis of those materials which lie deep buried within. The subjection of his being to one particular train of thought, placed his passions and feelings so perfectly under control as to give him the appearance of an individual without those ordinary emotions which characterize the human family; hence we find him under the most exciting circumstances as calm and collected as if he were perfectly indifferent as to the result of his investigations. No rich coloring of the imagination, or vivid impression of feeling are ever manifested in his writings, and "no sooner does he sit down to investigate a subject, than his passions seem as completely hushed as though their breath had never ruffled the soul; its surface looks as tranquil, as motionless, and we may add, as cold as a sea of ice, and the turbulence of passion seems as little likely to disturb the fixed calm of the one as the winds of heaven to raise tempests in the other."*

* Essay on the Genius and Writings of Edwards, p. 19.

ROBERT FULTON.

BUT scanty memorials are preserved of FULTON's early years, and these are exceedingly common-place, and devoid of interest. They show him to have been born in the township of Britain, in the county of Lancaster, Pennsylvania, in 1765, of poor, but respectable parentage; to have been left fatherless at the early age of three years, to the charge of a mother, whose straitened circumstances, prevented her from bestowing many advantages upon him either in his education or his future prospects, whatever her wishes or anticipations may have been; to have procured the simplest rudiments of an education at a small country school, and thus scantily stocked with means, experience or education, to have launched out into the great world, at the early age of seventeen, to win his way to honor and renown. The materials for filling up and perfecting the outlines of this picture of his boyhood, are without the reach of the biographer.

He was possessed of a gay and cheerful disposition, and pleasing manners, which rendered him a favorite among his little school companions; he was likewise endowed with an imaginative mind, and had great aptitude in acquiring any knowledge which took his fancy. As might be anticipated from one of his mercurial temperament, these were seldom sought in the more arid fields of elementary knowledge, requiring an effort of the memory to master them, but in those

subjects which appealed directly to the imaginative faculties, too often to the neglect of severer, but perhaps more useful studies. An anecdote illustrative of this, and which likewise shows the origin of an acquisition he turned to a very useful account a few years later, is related of him by one of his early school fellows.

This school-mate had an elder brother who was fond of painting, and was in the habit of parading his paints, at that time not easy to procure, on muscle shells. A number of these muscle shells, together with his cast off brushes, from time to time, fell to the lot of the younger brother, who carried them to school in his pocket. "Fulton saw and craved a part. He pressed his suit with so much earnestness," says the person who gave them to him, "that I could not refuse to divide my treasure with him, and in fact he soon, from this beginning, so shamed my performances by the superiority of his own, that it ended in my voluntarily surrendering to him the entire heirship to all that came into my possession. Henceforth his book was neglected, and he was often severely chastised by the school-master for his inattention and disobedience."

Fulton's family were not in a position to be of much advantage to him in a social point of view. His father, who died in the year 1768, was by birth an Irishman, and had emigrated to America, and settled in Lancaster county many years before, where he married a Miss Smith, whose family were like himself, emigrants from Ireland, of whom quite a number had settled on or near the boundary line then in dispute between the states of Pennsylvania and Maryland. Although a few of these emigrants were influential people, yet

the greater part, among whom Fulton's progenitors may be classed, were in an humble condition, both as regards fortune and position. They were hewers of wood and drawers of water. Men and women too, who in the land of their childhood had been accustomed to earn their slender subsistence by the toilsome labor of the day, and had brought their wants and habits with them into that of their adoption. Fulton's father, who likewise bore the name of Robert, was a small farmer, of such slender means, as to be unable to own the land he occupied, at a time when land in a frontier settlement, as it then was, bore a small price. He had five children, of whom Robert was the third, and the eldest son, three being daughters, and two sons.

Upon the demise of the father, Mrs. Fulton found herself in such reduced circumstances as to induce her to remove to Lancaster, the capital of the county, and about twenty miles distant from her former place of abode, probably with the view of resorting to some occupation which might enable her to rear her young and growing family. Here Robert attended the village school, and imperfectly conned many a lesson, under the stern monition of the birchen rod; for he never appears to have exhibited any remarkable proficiency in the acquisition of learning, and contrasted badly even with the dull and plodding pupils of an elementary country school, not so much from want of intellectual capacity, which his after years pretty fully demonstrated, as from the inattention so common to imaginative minds, which led him off from more matter of fact pursuits to indulge in a crowd of dreamy vagaries, that found a partial outlet in the indulgence of taste for painting.

About the year 1782, he was sent to Philadelphia, to be ap-

prenticed to a silversmith, but not finding that occupation to his mind, he pretty soon abandoned it, and returned to his favorite pursuit of painting, not for amusement, as formerly, but as a means of procuring a livelihood.

We find him shortly afterwards established as a miniature painter, at the corner of Second and Walnut streets, in Philadelphia, with no mean pretensions to artistical skill, if we may judge from the pecuniary success which attended his labors. He was at this time, but little more than seventeen years of age, and during the four years which intervened between his establishing himself in Philadelphia as a miniature painter and the attainment of his twenty-first year, he not only aided his mother very materially in sustaining her family, but likewise found himself possessed of sufficient means to purchase a small farm in Washington county, in Pennsylvania, upon which she was comfortably established, and continued to reside during the remainder of her life.

This incident shows Fulton not to have been wanting in filial affection. The casual circumstance of birth had cast his lot in poverty; success in a favorite pursuit had raised him from this condition to one of a comparative competence, and the first disposition he made of the means placed at his disposal, was to provide a safe asylum from future want, for his surviving parent. It was not until this had been accomplished that he felt himself at liberty to gratify the longings of his heart, to view for himself the productions in art of those great masters, about which he had heard and read so much, but seen so little.

He accordingly sailed for Europe the same year, instigated by the two-fold purpose of attaining to greater proficiency in

his profession, and likewise of restoring his shattered health, which had become extremely precarious. In returning from Washington county, he had visited the warm springs of Pennsylvania, but finding himself disappointed in any expectation of relief he had hoped to derive from this source, he lost no time in speedily getting on ship-board. The distinguished Dr. David Hosack, who was on intimate terms with him during the latter years of his life, says: "At about eighteen or twenty years of age, in consequence of exposure to cold, Mr. Fulton was attacked by inflammation of the lungs;—this was succeeded by a spitting of blood and other symptoms indicating a disposition to pulmonary complaints: under these circumstances, at the same time that he was influenced by other views, he was induced by his friends, to make a voyage to Europe."

During the last year of his residence in Philadelphia, he made the acquaintance of Benjamin Franklin, but just returned from France, who thought highly of him, and recommended him to his countryman, Benjamin West, then a resident of London, and rapidly rising into fame. This eminent and kind hearted painter was so highly prepossessed in favor of young Fulton, that he invited him to take up his residence at his house, where he continued to reside on terms of the most cordial intimacy during his continuance in London, which was prolonged for several years.

His foot-prints for a number of years after his arrival in England, were not sufficiently indelible to leave a permanent impress behind them, and we are left to conjecture the nature of his occupations. We hear of him in the beautiful and wide spread vale of Exeter, in the south-western part of the

island, and not long after, as a temporary resident of the dingy and bustling Birmingham, the emporium of iron manufacture in the British dominions. He had entirely recovered his lost health, and under the influence of his patron, had made many distinguished friends, which his pleasing address and agreeable manners enabled him to retain; but he was as yet known only as the promising young artist, patronized by the oracle of arts, whose name and fame had yet to be acquired. It is more than probable that the south-coast attracted his attention as an artist, and that he had gone thither for the purpose of improving his taste by becoming familiar with those exquisite pictures of quiet rural scenery, with which the vale of Exeter, and indeed the whole neighboring coast, so richly abound.

It would have been more difficult to account for his transition from this rural scene to the one whose prominent features were the smoke from its forges and the incessant clatter of its innumerable hammers, had not his whole train of thought and action undergone a change not less marked, than that of the scenes in the midst of which we find him. He had relinquished the palette and easel, to become the mechanical inventor, stimulated no doubt by the hope of large pecuniary rewards, to which the then recent success of Arkwright lent additional and brilliant hope, and with the abandonment of his first profession, he left the scenes so congenial to the tastes of the enthusiastic admirer of nature, for the workshops of the manufacturer of iron.

The first evidence of this change of occupation occurred in 1793, in a project for the improvement of inland navigation, which at this period occupied his entire attention. The new

direction thus given to his mind, owed its inception to an acquaintance formed a short time previous with the Earl of Stanhope and the Duke of Bridgewater.

This latter nobleman who was possessed of great wealth and influence, had rendered himself still more distinguished by the conception and execution of his celebrated canal, which has since served as a basis and model of inland navigation in England. The original intention of this work, as expressed in the act under which it was constructed, was to connect the manufacturing town of Manchester with Worsley, at which place the Duke of Bridgewater's coal mines were situated. It subsequently underwent several modifications, by which it was carried by Preston Brook to Runcorn, and communicated with the river Mersey, at that point. This work had been completed in 1776, and was already returning to its proprietor an ample remuneration for the money expended, in tolls. At the time when Fulton was made acquainted with the Duke, that nobleman was engaged in an attempt to extend a branch from his main canal at Worsley mill, to the town of Leigh, with a branch to Chat Mass, for the accomplishment of which he obtained the passage of an act in 1795, and completed the extension in the same year.

In May, 1794, the British government granted Fulton a patent for an inclined plane, applicable to transportation. The same year he laid before the British Society for the Promotion of Arts and Commerce, an improvement on the mode of sawing marble, which received the approbation of the Society, and called forth a vote of thanks, as well as the award of an honorary medal. Various other mechanical contrivances at this time, challenged a share of his attention, for some of which

he obtained patents, among which is a new means of spinning flax, and one for making rope.

The all engrossing topic however, was that of canal navigation, on which subject he appeared as the author of a treatise, in 1796. This work, styled a "Treatise on the improvement of Canal Navigation," and published in London, was presented to the public at a very auspicious moment for the author, who styles himself upon its title, a civil engineer, which profession he had for two or three years previously adopted. The public mind in England had become greatly excited by the complete success of the bold but fortunate undertaking of the Duke of Bridgewater, before which, all previous attempts of a similar kind sink into utter insignificance, and numerous works in different parts of the kingdom, involving a large expenditure of capital and labor, were planned and afterwards put into execution.

A work on canal navigation was therefore likely to command attention. The board of agriculture, to whom he had previously submitted his models, highly approved of and strongly recommended his plans, so that it was fair to suppose, that supported by such high authority they would meet with general favor. His main purpose was to demonstrate the advantage of small canals and boats over larger ones for mountainous countries, in which the boats could be raised up or depressed from one elevation to another by means of a very curious machine, of which he was the inventor, kept in motion by the water power acting from above. The work is not confined to the advocacy of these views, but enters into the subject of canal navigation at large, and is accompanied by many labored calculations.

The Shropshire canal, completed in 1792, four years prior to the publication of Mr. Fulton's work, was constructed with the view to obviate the precise difficulty he contemplated. William Reynolds, Esq., to whom the entire design is due, finding the country on the banks of the Severn so mountainous and elevated as entirely to preclude the ordinary modes of canal construction, conceived the plan of making a series of canals at different levels, and conveying the boats from one to the other by means of inclined planes. The first of these ascents from the bank of the Severn, was by an inclined plane of 350 yards in length, by means of which a perpendicular ascent was overcome of 207 feet. This plane was constructed with a double railroad, allowing boats of five tons burden to pass up. Two other ascents of about 120 feet each were overcome in a similar manner. The style in which this work is written is not remarkable for chasteness or gracefulness of diction, nor indeed could it have been expected from Fulton's inexperience as an author. The plans it recommends for adoption, whatever might have been their merits, have long since been superseded by the more simple and practical ones modern science has brought into use, in some degree through the agency of Fulton himself.

But whatever their ultimate destination, they were considered by their author at the time as of the greatest practical importance, and he did not hesitate to believe that they would meet with universal adoption. His anticipations of emolument, which were proportionally inflated, were never realized, for notwithstanding the recommendations of the British board of agriculture, and the zeal with which the subject was prosecuted by their author, the public manifested great shyness

in entering into his views. After having received a patent from the English government for his canal improvements, he visited France for the purpose of securing one in that country likewise, which, after a little delay, he obtained.

His thoughts naturally turned to his native land, as a country admirably adapted for the development of his canal scheme, and whilst he thought to prove himself a benefactor to his countrymen, he at the same time hoped to profit by the pecuniary compensation he considered as due to his services. He addressed a letter in 1796 to Governor Mifflin, of Pennsylvania, who had called the attention of the Legislature to the subject of canal navigation in his message of the preceding year, in which he alleges that the work was originally intended for the benefit of his native land, for whose prosperity alone he was stimulated to the task.

Yet notwithstanding all this talk about philanthropy, we cannot discover in Fulton any of that noble self-abnegation which characterized the actions of a Howard and others of similar pursuit. Like most men of inventive genius, he was stimulated in his pursuits by a love of fame and the desire to accumulate wealth. All the benefits which mankind could hope to derive from his labors were secondary to those which were to accrue to himself. An evidence of this is to be found in the very assiduity with which he prosecuted his claims in two great countries for a patent, which is nothing more than a legal mode of preventing society from deriving any advantage from an invention, except by bestowing a corresponding benefit on the holder of the patent in return.

Shortly after Fulton's arrival in Paris, in 1797, he formed the acquaintance of Joel Barlow, who a few years afterwards

became the accredited minister of the American government to the Court of St. Cloud. A friendship sprang up betwixt them of the most ardent and unreserved kind, only terminated by death. Mr. Barlow was Fulton's senior by ten years, and a native of the State of Connecticut. He had taken the degree of Bachelor of Arts at Yale College in 1778, on which occasion he had pronounced a poem on the prospects of peace, that gave him some reputation. Subsequently he read law, and entered upon the practice of it with considerable prospect of success at Hartford, in his native State, where he married Mrs. Baldwin, a lady of high respectability and great accomplishments.

He had published in 1787 a new poem, entitled the Vision of Columbus, which was reprinted in England, and added somewhat to his literary fame, although when a few years later it assumed a more pompous form under the title of the Columbiad, and claimed to be a national epic, it met with general condemnation at home and abroad. In the following year he visited Europe as the agent of a company for forming a colony on the Ohio river on a magnificent scale, and had continued to reside there since that period. He was moreover a political writer, had been admitted to terms of intimacy with Jefferson, and eulogised by Pitt in the House of Commons. In politics he was a zealous republican, of which party Fulton was likewise a member.

Not long after the beginning of this acquaintance, Barlow established himself in his own hotel, where Fulton joined him, and continued to reside during his residence in Paris. Like his countryman and intimate associate, his mind was full of mighty schemes for the political advancement of the human

family, and neither of them appear to have been niggardly in withholding advice on such topics, for while Barlow was addressing his memoirs to the French government on the subject of maritime law, Fulton was engaged in a correspondence with Carnot, a member of the executive directory, on the subject of free trade.

A peculiarity of Fulton's mind was that it always busied itself with magnificent undertakings. It was entirely unsuited for that minute, patient and abstracted investigation of small matters by which Leewenhock was enabled to detect the globular structure of the primary tissues of the body, and open the way to those splendid microscopic discoveries that have subsequently enriched science, or for the detail by which his great master in painting shadowed forth that beautiful creation of his imagination, which in the wild and lovely Ophelia fills the mind of the beholder with such mingled emotions of admiration and astonishment, and if it was ever minute in research, and patient in detail, it was because it had presented to it the greatness of the subject, imaginary or real, that occupied its attention.

This peculiarity diverted his thoughts, about this period, into a new channel, with such force as well nigh to banish from his mind his favorite canal scheme, which had now become an object of secondary importance. This was the invention of what Crabbe in his Dictionary of Technology calls "an instrument something like an infernal machine," for blowing up vessels, but which Fulton himself denominated a torpedo. This consisted of a hollow copper cylinder charged with from fifty to one hundred pounds of gun-powder, with a flint lock attached, which by setting a clock work in

motion, either by removing a stay, or the operation of a lever, exploded the powder within the cylinder at a predetermined time. These cylinders were made impervious to water, and were intended to be placed beneath men-of-war and other vessels, for the purpose of annihilating them. The means of explosion was the spark of fire occasioned by the sudden and forcible friction of the flint in the lock against a steel pan charged with powder, having a direct communication with the entire mass within the cylinder.

It was as easy to perceive how a vessel with fifty pounds of dry powder beneath it, and an ingenious contrivance to ignite the mass, could be shivered to atoms, as that a mined fort could be destroyed, but the difficulty consisted in placing the vessel and its formidable antagonist in this close juxtaposition. Fulton at first proposed to effect this object by bestowing on the cylinder a progressive motion beneath the water, until it had reached the point where the explosion was to take place. A machine constructed with this view, was tried by him in the Seine, in the presence of Mr. Barlow, but it signally failed to accomplish what its inventor had intended, and he abandoned the project of fixing it in its place by this means.

After numerous unsuccessful attempts, he at last fell upon the expedient of fixing the torpedo in the desired position by means of a submarine boat, to which he gave the name of Nautilus, invented by him for this purpose. St. Aubin, a member of the French tribunate, gives the following description of the Nautilus: "The diving boat, in the construction of which he (Mr. Fulton) is now employed, will be capacious enough to contain eight men, and provisions enough for twenty days, and will be of sufficient strength and power

to enable him to plunge one hundred feet under water, if necessary. He has contrived a reservoir of air, which will enable eight men to remain under water eight hours: When the boat is above water, it has two sails and looks just like a common boat; when she is to dive, the masts and sails are struck."

The boat thus described by St. Aubin, never was constructed, although at the time, it was the intention of Fulton to have caused it to be built. Through the agency, however, of the representative of the government of Holland, he procured the means, of which he sadly stood in need, from a Holland gentleman named Von Stophaust, to build one of smaller dimensions, on the same model. The spring of 1801, was spent in superintending the building of this vessel. On the 3d of July, of the same year, he made his first experimental trip in the harbor of Brest, with four persons, including himself, on board. Having struck her masts and sails, which occupied him but two minutes, he descended twenty-five feet below the surface of the water, at which depth he stayed his experiment, to remedy some imperfection in his machinery, which he feared would not admit of a greater pressure than it then sustained. Twenty-one days afterwards he repeated the experiment. He had, in the meantime, inserted a small window of less than two inches square, in the bow of the boat, by which means he was enabled to procure a sufficiency of light to answer his purposes, which in the former experiment, he had felt the need of. Having now become tolerably acquainted with the qualities of his vessel, he made another descent two days after, on the 26th of July, and after having reached a considerable distance below the surface, made his

first essay at changing her position at pleasure beneath the water. For this purpose, two of the men were set to work the engine containing her motive power, and the third was stationed at the rudder, to direct her course, while he superintended the apparatus by which it was maintained at any desired depth within the water. In this manner he was enabled to advance about five hundred yards in seven minutes, when he arose again to the surface. These experiments were frequently repeated until the 7th of August, on which day he remained under the water six consecutive hours, before rising to the surface.

Fulton, previous to the construction of his boat, had earnestly appealed to the French government, to appropriate a sum of money to enable him to prosecute these experiments, but after a series of vacillations betwixt doubts and promises, the minister of war communicated to him the unpleasant intelligence, that the government had unequivocally rejected his plan as impracticable and visionary. It was at this juncture when Fulton, confident of the feasibility of his scheme, yet sinking into despondency under the disappointment the action of the directory had involved him, was almost driven to the abandonment of his undertaking, that Von Stophaust came unexpectedly to his aid, by furnishing him with the means necessary to construct the vessel, with which the experiments just described were made.

When Bonaparte was placed at the head of the French government, under the title of First Consul, Fulton, inspired with renewed hope of substantial aid, lost no time in renewing his application to the government. On this occasion he was more fortunate than before, and a commission consisting

of La Place, Volney and Mange, were appointed to investigate his pretensions, before whom the results of the above experiments were submitted. His next experiment, performed in the presence of large crowds of spectators, among whom was admiral Vilaret, was to attack a small shallop, with his torpedo. He approached in his sub-marine boat within two hundred yards, when he struck her with the torpedo, and shivered her to fragments, throwing her remains amid a column of water, nearly one hundred feet into the air.

Fully armed, as he conceived himself to be, with this terrible weapon, he now sought an opportunity of applying it to one of the English men-of-war hovering around the coast of France. Inopportunately for the success of his experiments, these vessels were not so easily approached as the tenantless and unresisting shallop, and no opportunity offered itself to test its applicability to any use, beyond that of a mere instrument of show. The report of the commission was any thing but favorable. The French government, disappointed by his want of success, began to look coldly upon his scheme, and hesitated to appropriate more money towards it.

Foiled in his expectations of pecuniary compensation from this source, he entered into a secret communication with the English government, which resulted in an understanding that he was quietly to proceed to Amsterdam, and there meet an agent of the British government, with whom he might confidentially confer, on the subject of giving to England the advantage of the torpedo, rejected by the Bavarian and French governments. The preliminary steps that led to this intended conference do not appear to have been very fully explained, although attempts have been made to do so.

Under this arrangement, Mr. Fulton proceeded to Amsterdam in October, 1803, where he impatiently awaited the arrival of the British agent. After a lapse of three months, finding that he did not make his appearance, he returned to Paris, to which place he was followed by the agent, who was the bearer of a letter from Lord Hawkesbury to him, requesting a personal interview in London. To this request he complied, and arrived in the English metropolis in May, 1804.

The administration which had opened negotiations with him in the meantime, had retired from office, and on his arrival he found Mr. Pitt at the head of the ministry. After his models had been explained to Mr. Pitt, that distinguished statesman coolly remarked, that if Mr. Fulton's plans were feasible, and could effect in practice, what was promised for them in theory, they could not fail to put an end to the present system of naval warfare.

For the purpose of testing their practical utility, the government appointed a commission of great scientific attainments, to investigate them. The members of the commission were Sir Joseph Banks, Mr. Cavendish, Sir H. Popham, Major Congreve and Mr. Rennie. The commission was appointed in June, and after a few weeks' delay incidental upon the examination of a new subject, under which Fulton was exceedingly restive, met, and after examining the plans and models submitted to them, reported against the practicability of the sub-marine boat unconditionally, and spoke with doubts of the torpedo. Mr. Fulton appealed from the judgment of the commission to the ministry, who willing to give him every opportunity, directed some torpedoes to be used under his superintendence against the French vessels then in the roads of

Bologne. Two gun-brigs were accordingly approached under the cover of night by boats from the English vessels, and torpedoes thrown against them. They exploded by the side of the brigs without doing them any serious injury, beyond creating considerable alarm by their formidable appearance, rendered still more awful by the darkness of the night.

Fulton, with ready expedients, attempted to explain away this, to him really vexatious failure, and for the purpose of destroying the prejudice it had created against his scheme, obtained permission to blow up a Danish brig anchored in sight of Walmer Castle, Mr. Pitt's country residence. This vessel, which was arranged for the purpose like the French shallop, was blown up and destroyed. Mr. Pitt admitted the spectacle to be a very pretty one, but neither himself nor any of the other members of the ministry could be brought to believe that it possessed any practical utility, and the project was abandoned by the government.

We have thus given in as brief a space as possible the facts connected with Fulton's torpedo project in Europe, derived from the most authentic sources within our reach. One word as to his motives. We cannot but consider his conduct throughout this entire transaction as highly censurable, to say the least. He had been a resident of England for the ten years previous to the invention of his torpedo, and if he did not at that time consider himself a citizen of that country, which would seem probable from the circumstance of his communication to the board of agriculture being made by him as a resident of Stockport, and of his patent being granted to him as a citizen of London, he was at least bound to it by the strong ties of long residence and personal friendship with

many of its eminent citizens. These considerations should have deterred him from directing his torpedo against the navy of that nation, however much he might feel himself justified in turning it against that of any other. But when upon his loss of favor with the French government, he entered into negotiations with their enemy for the purpose of using it against their marine, we can perceive no possible ground for the justification of his conduct.

Fulton soon became aware of the questionable position in which he had placed himself, and attempted to explain it away by a series of letters to the British ministry and Lord Grenville, which his friends have made the most of, in extenuation of his intentions, but unfortunately these were all written too late, not to leave a doubt as to the object which called them into being. If it is true, as stated on the unquestionable authority of his personal friend, the Earl of Stanhope, that he was to give to the English government the benefit of his torpedo for the sum of fifteen thousand dollars, no letter or argument of a subsequent date can do away with the impression which that fact must make in the mind of every impartial person. Our purpose, however, is not to censure, but to speak the truth, for as no painting is correct which does not give the shadows as well as the lights of the landscape, so no biography is just which does not portray the faults as well as the virtues of the individual whose life it professes to give.

Fulton at the time complained, and his friends have since frequently reiterated the complaint, that justice was not rendered to him by either of the commissions of the French or English governments, appointed to investigate his invention.

The high character of La Place and Mange, of the French commission, and of Sir Joseph Banks and Cavendish, of the English, for eminent scientific attainments as well as great probity, is too well established to allow such a charge to stand for an instant, and yet like a stereotyped plate it is to be found in every biographical sketch of Fulton. It would seem as if the admirers of Fulton were willing not only to implicate the character of every individual composing these commissions, but likewise that of two of the greatest nations on the globe, rather than admit his failure in this exceedingly questionable matter of the torpedo.

Fulton's attention for several years prior to the period when we find him energetically, yet unsuccessfully prosecuting his torpedo experiments, had been directed to the practicability of navigating vessels by steam, and in common with a large number of persons, both in Europe and America, had suggested plans for the purpose of accomplishing this object. It would appear that the faint light of the early dawn of steam navigation was just rising above the eastern horizon, and the human mind in almost every part of the civilized world was attracted by its feeble glimmerings, and busied in attempting to unravel its dimly shadowed phenomena and laws. What part Fulton took in this, and what credit is due to him we will endeavor in the following pages impartially to demonstrate.

The first evidence we have on this subject, is a letter addressed by him to Lord Stanhope, dated 30th of September, 1793.

In the introduction to his treatise on canal navigation, published in 1796, he alludes to this correspondence "with his

lordship on the practicability of navigating vessels by steam," but these thoughts appear to be mere interludes upon his more favorite topics of canal navigation and the torpedo scheme.

The arrival of Chancellor Livingston in France, whither he had been sent as an ambassador from the United States to the French government, gave a more definite and practical turn to his hitherto vague speculations on this subject. Mr. Livingston, who entertained no doubt as to the ultimate success of steam navigation, had procured the passage of an act by the Legislature of the State of New York, on the 27th of March, 1799, granting to him the exclusive privilege of navigating the waters of that State for twenty years, under the plea that he was the "possessor of a mode of applying the steam engine to propel a boat on new and advantageous principles."*

This act, which in effect and words repealed a former one of the Legislature, dated 19th of March, 1787, granting the same privilege to John Fitch, who had failed to make it practically useful, was reported against on the 23d of March, 1798, by the council of revision, consisting of the Governor of the State, the Chief Justice and his two associates, "because the grant of the privileges to Robert R. Livingston intended by the bill supposes that the similar privileges which were granted to John Fitch by the act thereby to be repealed had become forfeited, whereas, it doth not appear that the facts on which such forfeiture is to arise have been found by some due course of law." The act, however, was passed notwithstanding the remonstrance of the council of revision, and Mr.

*Act of 27th of March, 1798.

Livingston became invested with all its privileges. He immediately caused a boat to be constructed of thirty tons burden, with an apparatus to impel it by steam, in compliance with the language of the act, which required him within twelve months from its passage, to satisfy the Governor "of his having built a boat of at least twenty tons capacity, which is propelled by steam, and the mean of whose progress through the water with and against the ordinary current of Hudson's river taken together, shall not be less than four miles an hour." The vessel failed to accomplish what its projector had intended, and he suspended his experiments for the time.

The manner in which Fulton's mind became finally directed to the subject of steam navigation is best told by Mr. Livingston in an article written by him on the history of steam navigation.

"Robert R. Livingston, Esq., when Minister in France, met with Mr. Fulton, and they formed that friendship and connexion with each other, to which a similarity of pursuits generally gives birth. He communicated to Mr. Fulton the importance of steam boats to their common country; informed him of what had been attempted in America, and of his resolution to resume the pursuits on his return, and advised him to turn his attention to the subject. It was agreed between them to embark in the enterprise, and immediately to make such experiments as would enable them to determine how far, in spite of the former failures, the object was attainable: the principal direction of these experiments was left to Mr. Fulton, who united, in a very considerable degree, a practical, to a theoretical knowledge of mechanics. After trying a variety

of experiments on a small scale, on models of his own invention, it was understood that he had developed the true principles upon which steamboats should be built, and for the want of knowing which, all previous experiments had failed. But as these two gentlemen both knew, that many things which were apparently perfect when tried on a small scale, failed when reduced to practice upon a large one, they determined to go to the expense of building an operating boat upon the Seine. This was done in the year eighteen hundred and three, at their joint expense, under the direction of Mr. Fulton; and so fully evinced the justice of his principles, that it was immediately determined to enrich their country by the valuable discovery, as soon as they should meet there, and in the mean time, to order an engine to be made in England."

It would appear from this statement, that Fulton was first induced to bring his mind practically to this subject, by the urgency of Mr. Livingston's request, and that all his prior investigations had not impressed him with any great confidence in the result. Indeed, both of these gentlemen were aware of certain hindrances to the success of all previous experiments, which they *now* sought to obviate. Whatever therefore, may be said in relation to the early correspondence of Fulton with Lord Stanhope, this must be looked upon as the time when he commenced in earnest those investigations, which have led to results more astonishing than even the most sanguine expectations of Fulton or Livingston could have led them to anticipate. Nor must we lose sight of the agency which Mr. Livingston had in the matter. Possessed of a large patrimony, and great personal influence, he used both unsparingly in the development of this project, and yet with

the unaffected modesty of a truly great mind, he abstains from claiming any participation in the results his means and personal countenance contributed so largely to render successful.

In the spring of 1802, Fulton accompanied Mrs. Barlow to Plomberras, whither she went for the benefit of her health, and during his sojourn there, took advantage of the seclusion of a little stream, which meandered through the town, for the purpose of prosecuting his experiments, the results of which are preserved in a series of letters addressed by him to Livingston and Barlow. Up to this time he conceived the practicability of procuring a motive power by means of resisting paddles, attached to endless chains, stretched over two wheels protruding from each side of the vessel, but having seen a model in Paris in October, 1802, in which a watch maker of Trevoux, named Des Blanes, had taken out a patent embracing substantially his ideas, but which had proved in practice, unsuccessful, he was led to the adoption of the paddle wheels, as explained in his letter to Earl Stanhope, and which entered into the composition of the boat constructed by him at the joint expense of Livingston and himself.

It is not our purpose to set up a claim for Fulton as the inventor of the paddle wheel, or of its application to the propulsion of vessels. It would appear from pretty good authority that paddle wheels have been found on the representations given on many of the tombs of the ancient Egyptians, of the boats propelled by oxen on the Nile.

The work of Valtarius, entitled "*De Re Militare*," published in 1742, establishes beyond controversy the fact that paddle wheels were in use among the Romans, before that

period. Besides the "Memoirs of the Jesuit Missions at Peking," published in 1782, contains an engraving of a war vessel used by the Chinese government, having two paddle wheels on each side, turned by men. The probability is, that so far from the paddle wheel being an invention incident upon the application of steam, as a motive power to vessels, it is nearly, if not quite coeval with the discovery of the boat itself.

Fulton, who had labored assiduously in superintending the progress of his trial boat, was just on the point of bringing his labors to a close, when an unlooked for accident occurred that well nigh disheartened even the sanguine projector himself. He had retired to bed late at night after a day of unusual excitement and anxiety, and sank towards morning into an unquiet slumber, when he was suddenly aroused by a messenger from the boat, with the unpleasant information that it had "broken to pieces and gone to the bottom."

He lost no time in repairing to the scene of his disaster, where he found the messenger's words but too truly confirmed. The construction of the boat was slight and unfaithful, and inadequate to sustain the massive and unwieldy machinery with which it was loaded, and during the prevalence of a high gale on the preceding night, had broken in two and sunk, encumbered with its heavy load, to the bottom. His feelings at beholding the wreck of so many months of anxiety, toil and expense, may be more easily imagined than described. His first sensation on reaching the spot he tells us, was one of crushing despondency; his mind was of too elastic a fibre, however, to yield to misfortune, and he soon recovered himself and set to work to discover

the cause and extent of the accident. So intent was he upon this occupation, that he continued laboring at the wreck for twenty-four hours without sustenance or repose before he yielded to the demands which these wants so imperiously exercise over the human body.

The boat proved a total wreck, and required an almost entire reconstruction. The machinery, on the contrary, had sustained but little damage, and was placed on the new vessel in the early part of the month of August. When all was completed, Fulton invited the National Institute of France, in a body, as well as a great number of distinguished gentlemen at Paris, to witness its first experimental trip. Although the speed it attained was considerably less than had been anticipated, yet on the whole it was satisfactory to Fulton, and inspired him with renewed hope as to the ultimate success of steam navigation.

His thoughts were now directed to his native land as the field of his future operations in steam navigation, and he directed portions of a steam engine to be made for him by Watt & Bolton, of Birmingham, England, and sent to New York, where the way had already been prepared for him by the exertions of his friend and associate, Livingston. This gentleman had some time previously written to his friends at home, advising them of the probable success of the experiments, Fulton and himself were prosecuting, and obtained the revival of the law passed in his favor by the passage of a new act of April 5th, 1803, granting an extension of the same privileges to himself and Fulton conjointly for the term of twenty years from its passage.

The intention of Fulton at this time evidently was to re-

turn to America at once, but, as we have seen, circumstances connected with his torpedo drew him to London. On the failure of these plans, he left England, and arrived at New York on the 13th of December, 1806.

A short time before his final departure from France he married Miss Harriet Livingston, a daughter of Walter Livingston, and near relative of Robert R. Livingston, at whose residence he first met with her. This lady was not only highly respectable in her connexions, but was possessed of many accomplishments and graces. She accompanied him on his return to America.

However much he may have looked to his steamboat enterprise as a means of ultimate aggrandizement, he foresaw the delay which would inevitably occur in the perfection of his plans and machinery, and the necessity for the immediate expenditure of a considerable sum of money. No sooner, therefore, had he reached the United States, than he hastened to lay his plans for sub-marine explosions before the government, actuated by the double purpose of benefitting it, and at the same time of recruiting his finances, preparatory to his steamboat experiments. The members of the President's Cabinet, and more especially Mr. Madison, Secretary of State, and Mr. Smith, Secretary of the Navy, were anxious to bestow upon it a fair trial, but the expenditure necessary to accomplish this rested with Congress, to whom Fulton made an application for that purpose, sustained by the executive department of the government. The action of Congress was somewhat tardy, and Fulton found himself obliged to return to New York before it was taken.

The government, which was about to begin the construction

of a canal from Lake Ponchartrain to the Mississippi river, invited Fulton, whose work on Canal Navigation had favorably impressed them with his qualities as a civil engineer, to undertake the task of conducting the necessary surveys and examinations. Fulton politely declined this offer, lest it might interfere with the two favorite topics that now exclusively engrossed his mind, and constituted the business of his life.

Immediately on his return to New York from Washington, he began the construction of his first steamboat in the United States, on which, out of respect to Mr. Livingston, he bestowed the name of Clermont, the name of that gentleman's country residence upon the Hudson river. This boat, although not constructed on a very expensive scale, so far outran his calculations as to its cost, that he was fain to offer one-third part of all the emoluments which might accrue from the privileges granted to Mr. Livingston and himself, to any individual who would furnish the means of defraying one-third part of the expense, and yet no person was found hardy enough to join him in the undertaking. Not at all dispirited by this want of confidence, he continued with his steadfast friend Mr. Livingston, to prosecute it, fully assured of its final success. By the spring of 1807, the Clermont was let off the stocks into the East river, preparatory to the reception of her machinery, which had in the meantime arrived from the manufactory of Watt & Bolton, in England. The summer was spent in adjusting this machinery to the vessel, and in August it was so far completed as to be ready for a trial trip.

In order to a proper comprehension of what is due to Fulton, it is proper to introduce here a cursory survey of what

had been accomplished in steam navigation prior to the building of the Clermont at New York.

The most ancient claim put forward for the application of steam to the purposes of navigation, is that in favor of a citizen of Spain, named Blasco de Garay, who was a sea captain by occupation, and is represented as a person of considerable genius. De Garay made known to the Emperor Charles V., that he had discovered a new mode of propelling vessels, and solicited an opportunity to put it to a practical test. For this purpose the emperor appointed a board of commissioners to witness the experiments of De Garay, and ordered a ship of two hundred tons burden, then unloading a cargo of corn at Barcelona, to be placed at his disposal. De Garay made a public experiment before the royal commissioners, in the harbor of Barcelona, on the 17th of June, 1543, in which a majority of the commissioners agree that he caused the ship to move at the rate of a league an hour, and that it was turned and manœuvered with facility. De Garay was anxious to keep his mechanism a secret, but two large moveable wheels, and a cauldron of boiling water were easily discovered as a part of it. The emperor was disposed to give countenance to the scheme, but an expedition in which he was engaged at the moment, engrossed all his thoughts, and diverted him from its further prosecution. De Garay was however, reimbursed for his expenses from the public treasury, and received in addition, a considerable reward in money, and an honorable promotion. The correctness of this statement has been called in question. The evidence on which it rests, are the documents said to have been lately discovered in the royal archives at Simancas, and published in 1825, by Thomas Gon-

zalez, director of the archives. This experiment, if it occurred at all, took place upwards of a century prior to the invention of the first acknowledged steam engine, which is generally attributed to the Marquis of Worcester, who published an account of his invention in 1655.

Jonathan Hull, of England, obtained a patent on the 21st of December, 1736, for "a new invented machine for carrying vessels or ships out of or into any harbor, port or river, against wind and tide, or in a calm." His plan was to place an atmospheric steam engine in a tug-boat, and to communicate its power by means of ropes, to the axis of a paddle wheel projecting from the stern of the vessel. His plan was never carried into practical effect.

• In 1760, a Swiss clergyman of Geneva, Switzerland, visited England for the purpose of laying before the commissioners of the Navy, a plan for propelling a vessel by means of a steam engine, whose power was to be communicated through springs to a species of jointed oar, made in imitation of the web-feet of aquatic birds, which would expand while propelling the boat, and fold up, so as to offer but little resistance while passing forward, to make a new stroke.

Comte d'Auxiron, a French nobleman of considerable attainments, built a steamboat, which he tried on the Seine, near Paris, in 1774. His engine did not prove sufficiently powerful to move the paddle wheels which he adopted, and he became disheartened by the failure of his first experiment, and abandoned the project. In the following year an exceedingly ingenious person, named Perier, who had assisted the Comte d'Auxiron, continued the experiment, with a defective engine of one horse power, which he connected to two paddle

wheels on a small boat. The motion obtained was slight, and the result unsatisfactory, but although he continued the experiments afterwards, adopting oars for paddle wheels, which he considered as the cause of the failure, no practical result of importance grew out of them.

In 1778, the Marquis de Jouffroy commenced a series of experiments on a much larger scale than any heretofore made, at Baume-les-Dames, which so favorably impressed him with the practicability of applying steam to the purposes of navigation, that in 1781, he constructed a boat on the Saône at Lyon, which, according to Arago, was forty-six metres long, and four and a half broad, being larger than any steamboat previously built. This boat possessed the advantage of having more perfect machinery than any of its predecessors, and was moved by two paddle wheels, one on each side. The political disturbances which occurred about this period, drove its projector into exile, and put an end to experiments, that certainly gave greater promise of success than any previously attempted.

In 1786, John Fitch, of Philadelphia, completed a boat and engine, thus described in the *Columbian Magazine* for December, 1786:

“It is to be propelled through the water by the force of steam; the steam engine is to be similar to the late improved steam engine in Europe, these alterations excepted; the cylinder is to be horizontal, and the steam to work with equal force at each end thereof. The mode of forming a vacuum is believed to be entirely new, also of letting the water into it, and throwing it off against the atmosphere without any friction. The undertakers are also of opinion, that their engine will

work with equal force to those late improved engines, it being a twelve inch cylinder; they expect it will move with a clear force, after deducting the friction, of between eleven and twelve hundred pounds weight; which force is to be applied to the turning of an axle-tree on a wheel of eighteen inches diameter. The piston is to move about three feet, and each vibration of the piston turns the axle-tree about two-thirds round. They propose to make the piston to strike thirty strokes in a minute, which will give the axle-tree about forty revolutions. Each revolution of the axle-tree moves twelve oars five and a half feet; as six oars comes out of the water, six more enter the water, which makes a stroke of about eleven feet each revolution. The oars work perpendicular, and make a stroke similar to the paddle of a canoe. The cranks of the axle-tree act upon the oar about one-third of their length from this lower end, on which part of the whole force of the axle-tree is applied. The engine is placed in about the third of the boat, and both the action and re-action of the piston operate to turn the axle-tree the same way."

It is exceedingly questionable whether any attempt was made to test the working powers of Fitch's boat before the following year. The article above quoted speaks of the experiment as *yet* to be tried, and alludes not to what it had done, but what was expected of it. Mr. Fitch in his petition to the government, in 1790, says that he "in the spring of 1785, conceived the idea of applying steam to the purposes of propelling vessels through the water." Dr. Rittenhouse gave Mr. Fitch a certificate dated 12th of December, 1787, which states that he "has frequently seen Mr. Fitch's steam-boat, which with great labor and expense, he has at length

completed, and has likewise been on board when the boat was worked against both wind and tide, with a very considerable velocity by the force of steam only;" from all of which it appears pretty clear, that after December, 1786, when the description appeared in the *Columbian Magazine*, and before December, 1787, when Dr. Rittenhouse's certificate was given, the experiments to which he alludes were made upon the Delaware river, in the neighborhood of Philadelphia.

On the third of December, in the same year, (1787,) an experiment was made on the Potomac river, with a steam vessel invented by James Rumsey, of Berkley county, Virginia, which was witnessed by a number of persons, whose certificates were obtained by the inventor. From these, it would appear that the speed obtained against wind and tide, was three miles an hour. The attestations of Mr. Charles Morrow and Joseph Barns, contained in the pamphlet of Rumsey, printed in 1788, go to prove, that Rumsey commenced his boat in May, 1785, and that after numerous delays, it was so far completed that an experiment was made in April, 1786, when it moved slowly against the current of the Potomac river. A second experiment was made in the December following, and a third and public one, on the third of December, 1787.

A very acrimonious contention ensued between these rival inventors, each of whom demanded nothing short of an exclusive privilege to navigate all the waters of the continent for a specified period. Nor was this altercation or these pretensions, confined to the parties themselves, but was largely shared in by their respective friends. Their inventions, however, proved equally abortive and useless, and would long

since have been consigned to oblivion had not pecuniary interests from time to time fanned their embers into a flickering and uncertain flame.

In the following year, the anticipation in favor of the success of steam navigation, appeared to assume a more tangible shape than it had yet put on, through the united and friendly labors of Patrick Miller, James Taylor and William Symington, of Scotland.

Mr. Miller was a gentleman of fortune, largely endowed with a love for mechanical pursuits, and a zealous promoter of such objects as he conceived would conduce to the public welfare. Mr. Taylor, in 1785, took up his residence in Mr. Miller's family, as a tutor to his sons, and frequently assisted him in his experiments on boats, which appeared to occupy much of his attention. In 1787, Miller had constructed a double boat of great sharpness, about sixty feet in length, to which he attached two paddle wheels, as a means of propulsion, to be turned by two men. This boat was matched against a fast sailing custom house boat, but it was found that a sufficient amount of force could not be applied to the paddle wheels to render its execution as effective as was desired or anticipated. Taylor suggested a steam engine to work the paddle wheels, and likewise mentioned the matter to his friend Symington, who had invented a steam carriage, in which he placed great confidence. The result was that a small engine was constructed with a cylinder four inches in diameter, which was placed in a small double pleasure boat, owned by Mr. Miller, in October, 1788. An experiment was made with this miniature vessel, on Dalswinton lake, at Mr.

Miller's residence, which resulted in a speed of five miles an hour, being greater than had heretofore been attained.

In 1789 these gentlemen caused an engine of twelve horse power, to be built, after the same pattern as the one with which the first experiments had been made, except its greater size. This was placed in a large double custom house boat, and tried on the Forth and Clyde canal, where, after correcting some defect in the paddle wheels, a speed was reached of seven miles an hour. These gratifying experiments were prosecuted no further, and led to no immediate practical results.

Symington, in 1801, under the patronage of Lord Dundas, commenced a new series of experiments, to test the practicability of steam tugs in lieu of horses for drawing boats on the same canal which had, some years before, been the scene of his former experiment. This tug was moved by an engine with a horizontal cylinder of four feet stroke, working by a connecting rod, a crank on the axle of a single paddle wheel placed at the stern of the boat. This boat was enabled to move at a speed of six miles an hour, when unencumbered, and drew two loaded vessels of seventy tons burden each, through the Forth and Clyde canal, in 1802, a distance of nineteen miles in six hours, against a strong head wind. This experiment, as well as several others of minor note, which had been tried in the meantime, was not followed by any great practical advantage, and did not seem to further the introduction of steam navigation.

While Fulton was in England, prior to his departure for America, he sought an interview with Symington, and expressed a desire to witness the operation of his boat, stating

to him in all candor, that he intended to return shortly to America, for the purpose of establishing steam navigation upon her numerous and extensive rivers. Mr. Symington very politely gratified him in this particular, and made a trip for his especial benefit, during which he made notes of the most remarkable points about the vessel, and Symington's opinions upon steam navigation.

It is to be regretted that Fulton's biographers have taken no notice of this interview, which appears to have created some heart burnings on the part of Mr. Symington, and more especially is it to be lamented that Fulton did not prepare the autobiography he at one time contemplated. Had he done so, besides furnishing the world with a picture of the doubt and hope, which chequered his eventful life, we are assured, he would have left Mr. Symington and his countrymen, no cause to complain of his want of courtesy.

It can hardly be laid as a grave charge against Fulton, that when about to embark in an enterprise involving a large outlay of capital, and which as yet rested on a very unsubstantial basis, he should have sought to possess himself of every information within his reach, and more especially when he sought it, as on the present occasion, with a full and frank avowal of his purposes. Nor can he be reasonably charged with gleaning such information from this interview as enabled him to prosecute his undertaking with the success which crowned his efforts in America. The experiments which were the basis of his future operations, had already been made, and the engine intended for the Clermont, had at that moment actually been ordered under specific directions given by himself to Watt & Bolton, who after all could have had

no interest in the matter, except to receive the pecuniary compensation due for their labor.

John Stevens, of Hoboken, New Jersey, who had been associated with Livingston in his early attempts, made a trial with a little steamboat which he had built in 1804. This boat was only twenty-five feet in length and five in width, and was moved by a steam engine proportionably diminutive, having a cylinder of but nine inches stroke, and a boiler of but two feet in length. With this little craft he obtained an average speed of four miles, and for a short distance, of seven miles an hour. Although from this moment Stevens never relinquished his steam projects entirely, yet up to the time when Fulton made his experiment with the Clermont, he had failed to establish by proof the applicability of steam to the ordinary purposes of navigation.

That its dawn had become very perceptible to the whole world, now darting its early beams over the sunny plains of France, anon lighting up with a transitory ray the high cliffs of Scotland, and again sending its light over the bosom of the Delaware, and far up the mountain recesses of the Potomac, no one will deny, but these rays were but the harbinger of the day, whose breaking forth was so eagerly anticipated. It was at this critical juncture that the Clermont made her experimental trip on the Hudson river.

This vessel, which was of one hundred and fifty tons burden, had a length of one hundred and thirty-three feet, a width of eighteen feet, and a depth of seven feet. Her engine, which was superintended by experienced engineers from Soho, was considered at the time, as a very creditable piece of mechanism. The cylinder was two feet in diameter,

and had a four foot stroke. The paddle wheels were fifteen feet in diameter, with paddles attached of four foot length and two foot dip into the water. These paddle wheels were attached to two cast iron cranks, which connected with shackle bars, of strong wrought iron, descending from the cross bar on the top of the piston rod.

About the middle of August, Fulton invited a party of friends to witness her first trip, among whom was the learned and facetious Dr. Mitchell, of New York, who had introduced Livingston's steamboat bill into the legislature, where it was opposed on the ground that "it was an idle and whimsical project, unworthy of legislative action," and drew down upon the Doctor all the "jokes and logic of the wags and lawyers in the house," which his peculiar gifts enabled him so admirably to return. The shore was lined with an incredulous crowd who had witnessed the operations of Fulton, always open to the public, with pretty much of the same feelings that one at the present day would bestow on the apparatus of some magnificent projector of a mode of navigating the air, and were now present, doubtless to witness his entire discomfiture, or from some of those indescribable motives, which on any extraordinary occasion, is sure to collect a mass of human beings together. True it was, that this motive was not to witness a successful experiment, which was universally doubted, and as Fulton made his way through the crowd, his ear was assailed by many a rude and unpalatable joke at his expense, and the folly of his undertaking.

Although Fulton had had practical demonstration of the ability of steam to propel vessels, not only in his own experiments in France, but in those he had witnessed on the Forth

and Clyde canal, through the agency of Mr. Symington, yet it was not without a flutter of the heart, and an anxiety of countenance he was unable to conceal, that he directed the machinery of the Clermont to be set in motion. Notwithstanding the apparent excellence of his engine, and the superiority of his boat, there were many defects in the construction of both, which rendered her less obedient than could be desired; but after a few moments of hesitancy she yielded to the superior force that impelled her, and moved slowly from her moorings, into the river. The first sensation of the hitherto unbelieving crowd, was that of astonishment, the second, one of admiration, which broke forth in the long and repeated applauses that rent the shore.

This was a proud, as well as an anxious moment for Fulton, and he felt, looking with the eye of a practised mechanic, through the most prominent defects of his machinery, that he had at last accomplished that triumph in the application of steam, which had hitherto been so industriously, and yet so ineffectually sought for by others. One of the defects of his vessel was the depth which the buckets of his wheels penetrated into the water. The boat had not long been under way when he caused her to be stopped, in order to curtail their width; which produced an increase of speed very manifest to all on board. The result of this trial trip was satisfactory to all except Fulton, who had been led from his hydromanic calculations, to believe that a much greater speed could be attained than he was enabled to procure for the Clermont, under the fullest pressure of steam he thought safe to put upon her.

This boat, after some additional alterations, made a trip on

the Hudson river to Albany and back, at an average running speed of five miles an hour. Fulton's opinion of this trip is preserved in a cautious communication made to his friend Barlow on the subject, and which is more worthy of note, because it was made to a zealous well wisher of himself and his undertaking, with no probable intention of publicity.

"My steamboat voyage to Albany and back, has turned out rather more favorable than I had calculated. The distance from New York to Albany is one hundred and fifty miles. I ran it up in thirty-two hours, and down in thirty. I had a light breeze against me the whole way, both going and coming, and the voyage has been performed wholly by the power of the steam engine. I overtook many sloops and schooners beating to windward, and parted with them as if they had been at anchor.

"The power of propelling boats by steam, is now fully proved. The morning I left New York, there were not perhaps thirty persons in the city who believed that the boat would ever move one mile an hour, or be of the least utility, and while we were putting off from the wharf, which was crowded with spectators, I heard a number of sarcastic remarks. This is the way in which ignorant men compliment what they call philosophers and projectors.

"Having employed much time, money and zeal, in accomplishing this work, it gives me, as it will you, great pleasure, to see it fully answer my expectations. It will give a cheap and quick conveyance to the merchandise on the Mississippi, Missouri and other grand rivers which are now laying open their treasures to the enterprise of our countrymen, and although the prospect of personal emolument has been

some inducement to me, yet I feel infinitely more pleasure in reflecting on the immense advantage that my country will derive from the invention."

Fulton's attention at this time was turned to the rapid streams which watered the valley of the Mississippi, and more especially to the great father of waters itself, as the field of the future successful operation of steamboat navigation, and it was a matter of great question whether with its costly machinery and constantly occurring expense, the steamboat could fairly enter into competition with the sail vessels of the Atlantic coast, and the rivers which flowed into it. The waters of the turbulent streams that found their outlet into the Gulf of Mexico, are carried downward with an impetuosity that totally precludes the use of the ordinary sail vessels, and it was then, and until within a short period, continued to be, the practice of those living in the upper western states, to build very slight flat boats, that could readily be converted into lumber, and after freighting them with their various kinds of produce, to allow them to float downward with the current, and after disposing of the produce at New Orleans, to sell them for building materials, and return homeward across the country, rather than to attempt to stem the rapid current of the rivers. These streams, by defying the power of sail vessels, seemed admirably adapted to develop the problem of steam navigation, and it is not singular that Fulton's mind should have been directed to them instead of the placid waters of the Atlantic slope, already whitened by a fleet of innumerable sail vessels. Be this as it may, the destination of the Clermont was soon changed, and it became a regular packet on the Hudson river, between New York and Albany,

and met from the first, notwithstanding a number of minor accidents, incident on the rude state of this species of navigation, with a liberal share of patronage, especially as a passenger boat.

The practicability of steam navigation being thus determined, Fulton was not long permitted to enjoy its benefits without rivalry. Mr. Stevens, to whom allusion has hereto-

NOTE.—M. Arago, whose opinions on all scientific matters are entitled to the most profound respect, gives the following resumé of his enquiries into this subject:

“Que M. Perier est le premier qui ait construit un bateau à vapeur, en 1775, (un ouvrage de M. Ducrest, imprimé en 1777 renferme la discussion des expériences auxquelles cet ingénieur avait assisté : leur date est ainsi constatée authentiquement.)

“Que des essais sur une plus grande échelle furent faits en 1778, à Baumeles-Dames, par M. le marquis de Jouffroy.

“Qu'en 1781, M. de Jouffroy, passant de l'expérience à l'exécution établit réellement sur la Saône un grand bateau du même genre qui n'avait pas moins de 46 mètres de long, et de 4,5 mètres de large.

“Que le ministère d'alors adressa à l'Académie des Sciences, en 1783, le procès-verbal des résultats favorables donnés par ce bateau, dans la vue de décider si M. de Jouffroy avait droit au privilège exclusif qu'il réclamait. (M. M. Borda et Perier furent nommés commissaires.)

“Que les essais faits en Angleterre par M. Miller, Lord Stanhope et M. Symington, sont d'une date bien postérieure ; car les premiers doivent être rapportés à l'année 1791, ceux de Lord Stanhope à 1796, et l'expérience faite par Symington dans un canal d'Ecosse à l'année 1801.

“Qu'enfin les tentatives de M. M. Livingston et Fulton, à Paris, n'étant que de 1803, elles pourraient d'autant moins leur donner des titres à l'invention, que Fulton avait eu en Angleterre une connaissance détaillée des essais de M. M. Miller et Symington, et que plusieurs de ses compatriotes, M. Fitch, entre autres, s'étaient livrés sur cet objet à des expériences publiques dès l'année 1786. Disons toutefois, quelle qu'en puisse être la cause, que le premier bateau à vapeur auquel on n'ait pas renoncé après l'avoir essayé ; le premier qui ait été appliqué au transport des hommes et des marchandises, est celui que Fulton construisit à New York en 1807, et qui fit le voyage de cette ville à Albany. En Angleterre, le premier bateau à vapeur qu'on y ait vu en activité pour les besoins du commerce et des voyageurs date de 1812, seulement ; il naviguait sur la Clyde et s'appelait *la Comète*. En 1813, il en existait un second qui faisait la traversée de Yarmouth à Norwich.”

fore been made as an experimenter in steam, had a boat nearly ready at the time of Fulton's experiment, which soon followed the Clermont into the water. As Fulton had already a monopoly of the Hudson, Stevens took his vessel by sea into the Delaware, where it became a passenger boat. However much is due to Fulton, it is but an act of justice to say, that next to him Stevens has rendered more important service in perfecting the models of steamboats, and increasing their speed, than any other person, either at home or abroad, connected with early steam navigation.

We have heretofore had occasion to remark that Fulton's mind was divided between his torpedo scheme, and that of steamboat navigation, in the latter of which we have followed him until fairly afloat, and apparently in full tide of successful operation. But during all the excitement attendant on the superintendence of his steamboat, he never, for an instant, lost sight of the torpedo whose development the critical position of our maritime affairs seemed highly to favor.

"The condition of the navy may be said to have been negative at the period of which we are now writing, for while all who reflected seriously on the subject, felt the necessity of greatly increasing this branch of national defence, nothing efficient was attempted, or apparently contemplated. Ships of the line, without which it would be impossible to prevent any of even the secondary maritime states of Europe from blockading the ports of this country, were now scarcely mentioned, and the materials that had been collected for that object in 1800, were rapidly disappearing for the purposes of repairs and re-construction. It is indeed, difficult to imagine a policy as short sighted and feeble, as that pursued by congress at

this particular juncture. With political relations that were never free from the appearances of hostilities, a trade that covered all the seas of the known world, and an experience that was replete with lessons on the necessity of repelling outrages by force, this great interest was treated with a neglect that approached fatuity. To add to this oversight, and to increase the despondency of the service as well as of all those whose views extended to the further necessities of the country, the government appears to have adopted, in connexion with the defence of the harbors, bays and sounds of the coast, a plan that was singularly adapted to breaking down the high tone that the navy had acquired in its recent experience. This plan, which has been generally known as the "gun boat policy," originated as far back as the year 1803, though it did not become of sufficient moment to be particularly noticed until the time at which we have now arrived in the regular order of events.

"An event soon occurred that not only stimulated this policy, but which induced the government to resort to new measures to protect the country, some of which were as questionable as they were novel. A few ships had been kept in the Mediterranean, as stated, and it is worthy of being noted, that, with a commerce that in 1807 employed 1,200,000 tons of shipping, this was the only foreign station on which an American cruiser was ever seen! Neither was there any proper home squadron, notwithstanding the constant complaints that were made of the wrongs inflicted by the English and French cruisers, particularly the former, at the very mouths of the harbors of the country." *

* Cooper's Naval History, vol. 2, p. 8.

While the navy was in the condition above described, the frigate Chesapeake was ordered to be put in commission, in order to relieve the flag ship Constitution, on the Mediterranean station, under the command of Commodore James Barron, who was ordered to the command of the squadron, and Captain Charles Gordon, master commandant.

About May, 1807, while she was lying at the navy yard at Washington, the government were notified by the English minister, that three men who had deserted from the ship Melampus, had enlisted as a part of the Chesapeake's crew, and a demand was made for their restoration. Captain Gordon instituted an enquiry into the matter, under an order to that effect, from the navy department, which resulted in eliciting the fact that the three seamen claimed by the British government were actually deserters, but that they claimed to have been impressed Americans, who had seized the first opportunity to escape. These facts were represented to the English minister, who seemed satisfied with the report.

On the 22d of June, the Chesapeake left Hampton Roads, bearing the broad pennant of Commodore Barron. On the afternoon of the same day the Leopard, a small two decker, mounting 56 guns, which had just joined the English squadron, and had preceded the Chesapeake in her passage to sea, wore round when about one mile to the windward, and bore down upon her weather quarter, when she informed the Chesapeake that she had despatches for the Commodore. Both vessels came to, and a boat from the Leopard, with an officer on board, boarded the Chesapeake. The British officer bore a requisition from Vice-Admiral Berkley, requiring the com-

mander of the Chesapeake to allow a search to be made for deserters, to which Commodore Barron gave a negative reply.

On the return of the Leopard's boat with the American commander's reply, a shot was fired from the Leopard ahead of the Chesapeake, which was immediately followed by an entire broadside. The Chesapeake not anticipating such a result, was entirely unprepared, and bore the fire of the Leopard for twelve or fifteen minutes without being able to return a single shot. Her colors were then lowered, and a shot was fired from her at the moment. The three men who had deserted from the Melampus, and one from the Halifax, were re-captured and carried to the Leopard.

This attack on the Chesapeake, while it created a universal feeling of indignation, clearly demonstrated the inefficiency of the government to protect itself from insults and injury, even within sight of its very harbors. Fulton proposed to remedy this deficiency by means of his torpedoes, and proposed to the government personally to superintend the protection of its entire line of coast, if it would accept of his services. Others had not the same confidence in his means of defence as himself, and whilst the executive branch of the public service expressed a willingness to give his torpedoes a fair trial, we do not find that they entered into any calculations of defence, projected by either department, although the gun boats proved equally futile and unworthy of confidence.

In order to inspire the public confidence, Fulton in August, 1807, announced that he would blow up the hulk of a large brig in the harbor of New York. This announcement drew together a large crowd of spectators, who waited for several hours after the time appointed for the explosion to take place,

in momentary expectation of its occurrence, and were at last beginning slowly to disperse, when a dense column of water, flame and fragments, attended with a loud explosion, announced the success of his experiment. "The brig was anchored, the torpedoes prepared and put into the water in the manner before described (in the case of the *Dorothea*;) the tide drove them under the brig near her keel, but in consequence of the locks turning downwards, the powder fell out of the pans, and they both missed fire. This discovery of an error in the manner of fixing locks to a torpedo had been corrected. On the second attempt the torpedo missed the brig, the explosion took place about one hundred yards from her, and threw up a column of water ten feet in diameter, sixty or seventy feet high. On the third attempt, she was blown up; the effect and result were much the same as that of the *Dorothea* before described."

In the early part of 1808, he had two additional steamboats, whose building he had superintended the previous year, ready to be placed on their lines. The *Raritan* was intended to navigate the Raritan river, and the *Car of Neptune*, the Hudson. Both of these vessels were built at the yard of Charles Brown, at New York, and the latter was considerably larger than the two heretofore built, having a tonnage of 295 tons, and was of the following dimensions: length, 175 feet, depth, 8 feet, and width, 24 feet. Her engine had 4 foot 4 inches stroke, and her water wheel was 16 foot in diameter, with 2 foot 4 inches dip of paddle. The *Raritan* was of 120 tons burden.

Whilst at Washington during the autumn of 1808, he prepared the specifications for his first application for a patent for "new and useful improvements in steamboats." The schedule

that accompanies this application is dated January 1st, 1809, at Kalorama, the exceedingly picturesque and beautiful residence of his friend Barlow, situated on the undulating shore of Rock Creek, in the immediate vicinage of Washington, and thus details his "discoveries, inventions and improvements on steamboats:"

"To obtain the power for driving the boat, I make use of Messrs. Bolton & Watt's steam engine, but instead of a beam above the cylinder, I have a triangular cast iron beam on each side of it, and near the bottom of the boat the base of the triangle is seven feet long; in the centre of the base, a perpendicular is raised three feet six inches high, which is the vertex of the triangle; the two triangles are fixed on one strong iron shaft, so that they play together. On the top of the piston rod there is a tee piece or strong iron bar which moves in guides at each side of the cylinder; from each end of the tee piece, and passing down by the sides of the cylinder, is a strong bar of forged iron, called a shackle, which is connected by a shackle pin to the end of the beam, thus the end of the beam moves through a curve in a perpendicular direction, and its vertex moves through a curve in a horizontal direction; the other end of the triangle is cast with a weight of iron sufficient to balance the weight of the piston, and all the weight on the opposite side of the fulcrum, or centre of the base line. From the vertex of each triangle, a shackle, from six to eight feet long, is connected with a crank which is fixed on each side of the propeller wheels; close to each crank is a cast iron wheel about four feet six inches diameter, each driving a pinion two feet three inches diameter; these two pinions are on one shaft, in the centre of which is a fly wheel

ten feet diameter; the movement for the air pump is taken from the base line of the beam, and twenty-one inches from the fulcrum. The condensing water comes through the sides or bottom of the boat by a pipe, which enters the condenser, and is regulated by a cock or valve. The hot well, the forcing pump, to replenish the boiler, the steam gauge, the safety valve, the float in the boiler, to regulate the quantity of water, the plug tree and hand gear, &c., are so familiar to all persons acquainted with the steam engine, and may be arranged in such a variety of ways, as not to require a description. I prefer a propelling wheel or wheels, to take the purchase on the water; they may be from eight to twenty feet diameter, and divided into any number of equal parts, from three to twenty; each wheel may have from three to twenty propellers, but a wheel or wheels from twelve to fifteen feet diameter each, with from eight to twelve propellers, will be found to apply to the engine to great advantage. Hitherto I have placed a propelling wheel on each side of the boat, with a wheel guard or frame outside of each of them for protection. A propelling wheel or wheels, may however, be placed behind the boat, or in the centre, between the connecting boats. To give room for the machinery, passengers, or merchandise, I build my boats five or more times as long as their extreme breadth at the water line. The extreme breadth may be one-third from her bow, or in the middle, in which case the water line will form two equal segments of a circle united at the ends. To diminish the plus and minus pressure, I make the bow and stern sharpened to angles of at least 60 degrees, and that the boat may draw as little water as possible, I build it flat, or nearly so, on the bottom. Having

mentioned the essential component parts of a steamboat, and its mechanism, its successful construction and velocity will depend,

First,—On an accurate knowledge of her total resistance, while running one, two, three, four, five or six miles an hour, in still water.

Second,—On a knowledge of the diameter of the cylinder, strength of the steam, and velocity of the piston, to overcome the resistance of a given boat while running one two, three, four, five or six miles an hour, in still water.

Third,—On a knowledge of the square feet or inches which each propeller should have, and the velocity it should run to drive a given boat one, two, three, four, five or six miles an hour through still water. It is a knowledge of these proportions and velocities, which is the most important part of my discovery, on the improvement of steamboats."

Immediately after filing these specifications with the government, he "had the pleasure of exhibiting at Kalorama, to Mr. Jefferson, Mr. Madison, and a party of gentleman from the Senate and House of Representatives, some experiments and details on torpedo defence and attack."*

The party invited by Barlow to witness these experiments, and partake of his hospitality, appeared to be so favorably impressed, that Fulton was induced to present, in the form of a pamphlet with five engravings, a description of his system, to the President and congress. This pamphlet was issued during the same year, but no definitive action appears to have been taken on the subject before the 26th of February, 1810, when Mr. Bradley, from a select committee of the Senate,

* Fulton's use of the Torpedo.

appointed to inquire into the expediency of employing the torpedo, made a report recommending the appropriation of a small sum of money to be placed at the disposal of the Secretary of the Navy, "to enable him to ascertain with precision, how far it might be expedient" to employ it. This committee, in their report, remark that "if it can be demonstrated by actual experiments, that the theory is susceptible of sure practical operation, it certainly will merit the attention of every government who at present does not exercise, or does not hereafter expect to exercise, an undue influence over the seas," manifesting a disposition to do full justice to Fulton, and at the same time to avail themselves of any merit the torpedo might be found to possess.

On the 30th of March, 1810, an act was passed, placing five thousand dollars at the disposal of the Secretary of the Navy, to "test the practical use of the torpedo."

The Secretary of the Navy appointed a committee for the most part of Fulton's personal friends, to be present at the experiments intended to be made by him in the harbor of New York. Commodore Rogers, and Captain Chauncey, of the Navy, were likewise "requested to attend the experiments, and conduct the defence against the torpedo."

The letters notifying the members of the committee of their appointment, were dated May, 4th, 1810, but the experiments did not take place until the 21st of September, and were continued to the 1st of November, 1810.

The following extract from Commodore Rogers's Journal, which was presented to the House of Representatives, February 14th, 1811, as a part of the proceedings in the case, details the results of the experiments ;

"September 21, 1810.—At eleven o'clock in the forenoon, Captain Chauncey, of the Navy, and myself, accompanied by Colonel Wharton, according to appointment, met at the city hotel, Broadway, Mr. Fulton and a committee appointed by the Honorable Paul Hamilton, Secretary of the Navy, consisting of Chancellor Livingston, Governor Lewis, C. D. Colden, Esq., Mr. Garnett, Doctor Kemp, and Colonel J. Williams, (Mr. Oliver Wolcott, late Secretary of the Treasury, a member, being absent,) to investigate and report their opinions of the principles, as well as to demonstrate, by such experiments as Mr. Fulton might advise, the efficacy of (as engines of national offensive and defensive war,) certain sub-marine projects published by him, under the title of the "Torpedo War," which he had proposed to congress as being well calculated to supersede the necessity of a navy. And to enable the projector to prove by actual experiment the efficiency of his scheme, a law was passed in February, 1810, appropriating five thousand dollars to the purpose. The committee all being present, with the exception of Mr. Wolcott, at noon Mr. Fulton opened the subject by placing a torpedo lock on the table; and after some preliminary observations relative to the progress and improvements in various arts and sciences, he quoted a few paragraphs from his book, entitled "Torpedo War," to enable him to explain more forcibly the affinity of his preceding remarks to the subject then before the committee. He expressed a desire that I would have the frigate President transported from the North river (where she was then lying) to the East river, contiguous to the navy yard, for the purpose of making an experiment. I asked Mr. Fulton if the experiments could not as well be made on the North river,

and observed, that the President was undergoing some repairs in her rigging, preparing to paint, &c.; consequently she could not conveniently be removed. He observed that he preferred the East river, on account of its contiguity to the navy yard; as at the yard, he would (previous to the experiments,) be afforded with the means of making the necessary arrangements with his machinery, as well as with the boats and men, which might be required.

“The United States brig Argus was, at this time lying in the East river, near the navy yard, which enabled me to offer her for his accommodation; which he having accepted, the committee (with the exception of Mr. Wolcott, an absent member, and with the concurrence of Mr. Fulton,) unanimously resolved that the experiments should accordingly be commenced on the 24th instant, with blank torpedoes, on the United States brig Argus; and that such defence should be made by her as a vessel of war was capable of, without the use of her guns, or any other active force of similar kind.

“The time and mode of experimenting being now determined on, Mr. Fulton placed a torpedo on the table, and observed that it was the kind with which he should commence his essays on the Argus.

“This kind of torpedo, it will be observed, is intended to be applied to a vessel's bottom, from the bowsprit of a torpedo boat, by the aid of a long pole, suspended by a swivel on the end of the bowsprit, so nearly on a balance that a man in the bow of the boat can elevate or depress the torpedo with his right hand, and at the same time fire it, by pulling a line which he holds in his left.

“Mr. Fulton having fully explained the principles of the be-

fore described torpedo, the committee adjourned to meet on the 24th instant, for the purpose of commencing the experiments, as had been previously resolved.

“September 22.—On this day, Mr. Fulton, (having previously prepared a torpedo boat) had various torpedoes and apparatus transported to the navy yard, for the purpose of essaying with on the Argus, consisting of five different kinds, as also a combination of various different machines, viz: a hook, chisel and gun, intended for the purpose of cutting off cables under water.

“September 24th.—On this day, with the advice of Captain Chauncey, I gave Lieutenant Lawrence (commander of the Argus) directions to prepare his vessel in a manner to prevent the application of torpedoes under her bottom, and which he accordingly did, with nothing more than simply her own spare studding-sail booms, nine fire grapnels, a few pegs of kentledge, and the President’s splinter net.

“After the Argus was thus prepared for the experiments, several thousands of the citizens of New York assembled at Corlear’s Hook, (opposite the navy yard) for the purpose of witnessing the result of Mr. Fulton’s operations on her; but the weather proving somewhat unfavorable, and the committee, in consequence, having sent to notify that they would not attend on this day, a boat was despatched to inform the people collected there that no experiments would be made before the next day.

“It now appearing that Mr. Fulton had given up the intention of experimenting on the Argus, I mentioned to the committee that she was then under sailing orders, and that if Mr. Fulton did not intend to make any essays on her, I would

order her to prepare for sea, and which I should have done, had he not at the time, expressed a desire that she might be detained a few days longer, as it was probable (as he said) that he might, in a very short time, be prepared to make some experiments on her.

“The committee now adjourned to meet on the 28th instant.

“Mr. Fulton now having expressed doubts whether the preparations made on the *Argus* could be effected with any reasonable degree of facility, the committee proposed that she should be got under weigh, and that the preparations then made on her should be displaced, which being done, that she should be brought to an anchor again, and the same preparations re-placed, in order to prove the facility with which such an operation could be performed. This proposal was accordingly assented to; but the rudder of the *Argus* being at the time on shore, and under repair, the performance was necessarily postponed, to take place on the 1st of October, on North river.

“October 1st.—Owing to calm weather during the two preceding days, the *Argus* was not removed into the North river, as had been determined on the 28th ultimo; the committee, however, not thinking it then necessary that she should be removed for the purpose of performing the experiments which at their last meeting, had been resolved on, agreed that they should be made where she then lay, in East river, and which was accordingly complied with, when to the astonishment of those who had entertained any doubts of the facility with

NOTE.—It will be recollected that Mr. Fulton addressed a letter to the members of Congress, who voted in favor of the torpedo bill, dated April 15th, 1810, in which he assured them that nets, booms, &c., instead of obstructing, would facilitate his operations.

which a vessel could be so prepared after she had been dismantled of such preparations, the same were seen re-placed in less than fifteen minutes.

“ Mr. Fulton, having now candidly acknowledged, (and that too, in a manner much to his credit,) that his want of nautical information had led him into many errors; at the same time, all parties wishing to see the project thoroughly tested, the committee adjourned to meet on the 29th instant, in order that he might be afforded sufficient time to make experiments on the improvements which he had suggested, as being necessary to the perfecting of his torpedoes, and the manner of applying them. Therefore, all that has yet been proved relative to this description of torpedoes, I consider in amount as nothing, when compared with the object for which it was constructed, and even if it was capable of being made as perfect as the projector has described in his book, entitled “ Torpedo War,” (but which I utterly deny) it can never be of any important consequence, as by the aid of a very simple piece of machinery, in form like the back-bone of a fish, (and which would naturally suggest itself as a preventive) its effect may, without the question of a doubt, be rendered harmless.”

The majority of the committee, among whom was his intimate friend and future biographer, Colden, made a report on the 22d of January, 1811, to the Secretary of the Navy, likewise submitted to the House, which says :

“ It seems to be generally admitted, that a ship may be destroyed by sub-marine explosions, but whether Mr. Fulton’s system can be rendered practically useful, must, as we conceive, depend on future discoveries and improvements. The only opinion which we venture, at this time, to express with

any degree of confidence, is that this system is at present too imperfectly demonstrated to justify the government in relying on it as a means of public defence."

Mr. Fulton addressed a letter from Kalorama, on the first of February, 1811, to the Secretary of the Navy, as a rejoinder to Commodore Rogers's Journal, and thus terminated, and forever, the connexion of the government with the torpedo.

It must be admitted that no invention ever had a fairer or more impartial trial than that of the torpedo. Three separate governments had at different times, made appropriations of money to test its value, and had referred it to committees of distinguished men, who were disposed to award a full meed of merit to the inventor; besides, it was manifestly the interest, as we have already seen, of the American government that it should succeed, yet, after the repeated trials afforded to it, as in the case of the American commission, aided by the warmest ties of personal friendship, it was unequivocally condemned.

Fulton obtained a second patent for his inventions in steam-boats, on the 9th of February, 1811. Accompanying the application for this patent, he presented a schedule drawn up with great care, including the claim contained in his former one, and additional matter, inserted with a view to enable him successfully to enter into that litigation which an innovation already commenced on his rights, seemed to demand of him.

The first formidable opposition was that of a company, who sought to propel their boats by a pendulum movement, but finding this insufficient, they resorted to steam, making such slight alterations in Fulton's mode as barely to escape an in-

•

fringement of the letter, although they retained the spirit of his designs.

For the purpose of arresting this opposition, Livingston and Fulton found it necessary to make an appeal to the Chancellor, to grant an injunction against the company, who were represented in this suit under the appellation of Van Ingen and others. The Chancellor, after much deliberation, refused to grant the injunction.

From this decision of the Chancellor, an appeal was taken in the winter of 1812, to the Court of Errors, composed of the members of the State-Senate, and the five judges of the Supreme Court. The defence set up in opposition to Fulton, was that the laws granting and securing this exclusive right, were unconstitutional :

1st. Because they interfered with the powers of Congress to regulate patents.

2d. Because they interfered with the regulations of commerce.

The opinion of Judges Yeates and Thompson, and Chief Justice Kent, which are very able and lucid legal documents, all coincided in reversing the decree of the Chancellor, which the court proceeded unanimously to do, and granted the injunction demanded.

This was but the beginning of a series of law suits, which among his other multitudinous occupations, pressed upon him, and continued to prove a source of harassment and perplexity up to the last moment of his life. As an examination of these would lead much more into detail than it is our purpose to enter, we shall dismiss them, as possessing minor interest for the general reader.

Early in the year of 1814, he exhibited to a committee of the most influential citizens of New York, a plan for a steam frigate, armed with a strong battery, and supplied with furnaces for red-hot shot. As to the practicability of his plans, Commodores Decatur and Perry, and Captains Evans, Biddle, Warrington and Lewis, after a careful examination, did not entertain a doubt. Fortified by such high authority, this committee, who were denominated the coast and harbor defence committee, feeling great alarm at the exposed situation of the harbor of New York, with the ships of the most powerful navy in the world hovering over it in a hostile attitude, addressed an urgent appeal to congress, praying that immediate means might be taken to construct a frigate according to Mr. Fulton's plan, and under his superintendence. Congress responded to the memorialists, by passing a law in March, 1814, appropriating money under the direction of the President, for the building and armament of one or more of the frigates asked for by the New York committee.

Fulton, without whose great skill in such matters, the committee believed the frigate could not be built, was selected to superintend its construction, under the advice of a committee composed of General Dearborn, Col. Henry Rutgers, Oliver Wolcott, Dr. Samuel L. Mitchell and Thomas Morris. The keel of this vessel was laid on the 20th of June, 1814, and such was the zeal with which it was prosecuted, that notwithstanding the strict blockade maintained by the enemy of the harbor, and the consequent difficulty in obtaining the materials necessary for its construction, it was passed from the stocks into the water on the 29th of the following October,

amid a vast concourse of spectators, who had assembled to witness the launch.

In February of the following year, (1815,) Fulton visited Trenton, the capital of New Jersey, as a witness, on the petition of John R. Livingston, to the Legislature, to rescind a law previously passed, which prevented a steamboat owned by him from making her accustomed trips between New York and New Jersey.

Whilst at Trenton, his attendance on the legislature, and exposure to exceedingly inclement weather, induced a cold, which a natural predisposition rendered more susceptible, by two recent attacks of a similar character, soon fixed upon the lungs. An anxiety to return to his family and the multitudinous occupations that engrossed his thoughts, induced him to set out for New York at a time when prudence dictated a careful confinement to his apartment, and a rigid observance of medical regimen.

On reaching Paulus Hook, the Hudson was found partly closed with ice, and a detention of some hours occurred in procuring a boat to cross the river, which Fulton spent in visiting the works of Brown & Co., and examining the boats which were undergoing repairs preparatory to their use the following season. After reaching that part of the river which was frozen over, he left the boat in company with his friends, John R. Livingston, Sampson and Emmet, to cross over the ice on foot. They had not proceeded far before Mr. Emmet fell through the ice, and was placed in a situation of great peril. Fulton in attempting his rescue became quite wet, and when he reached his house, his cold had increased to such an extent he was scarcely able to articulate.

Confinement to his bed for two or three days, so moderated the intensity of the symptoms under which he was laboring, that he ventured to visit the Paulus Hook works, to inspect the steam frigate, about which he was particularly anxious. This unfortunate visit lighted up anew all the symptoms of the disease with an increased violence, which conjoined to the debility occasioned by his recent prostration, foiled all the skill of his medical advisers, and rapidly terminated in death.

The distinguished Dr. Hosack, who was called to render his aid late in the disease, says: "A renewal of the inflammation of his lungs took place, followed by a large and copious expectoration, partly purulent and in part sanguineous; partial relief was obtained, and some faint prospect of recovery appeared, but about six days before his death, the inflammation transferred itself from the windpipe and lungs to the external parts of the neck and lower jaw; a tumor took place, apparently of the right parotid gland, exhibiting the circumscribed appearance of mumps, but it soon diffused itself, involving all the integuments extending from that gland to the clavicle, in a high degree of erysipelatous inflammation.

"All the usual applications were resorted to for the purpose of allaying this tumor and inflammation, but without success; his breathing became more oppressed, and his powers rapidly declined:—at that period, between eleven and twelve o'clock, of the night of the 22d of February, I was requested to visit him in consultation.

"Upon entering the room, he immediately extended towards me his hand, thereby manifesting the yet undisturbed state of his intellect, although he was then nearly deprived of

the power of speech. Upon approaching his bedside, I at once perceived his situation to be hopeless—the feeble state of his pulse,—the hurried and labored respirations,—his livid and anxious countenance—all announced his approaching dissolution, and that nothing could be added to what had already been done by his medical friends then in attendance. The morning of the succeeding day closed his important life.”

In the narration of the facts connected with steam navigation we have impartially given, we have pretty clearly demonstrated that Fulton was not entitled to credit as the inventor of steam, or of its application to the purposes of navigation; that even in the apparatus which he made use of, there was nothing strikingly peculiar, or new; and that in common with others of a similar character of mind, in different parts of the world, he was engaged in solving a problem, whose ultimate result was declared by more than one indubitable evidence. Credit is therefore not due to him for any of these things, but for the patient, persevering, and enduring energy, which enabled him to prosecute, under the most adverse and disheartening circumstances, his favorite pursuit until it resulted in the complete triumph of the *practical* application of steam to the ordinary purposes of navigation.

What influence this *practical* application of steam to navigation, has already produced, or what in the rapid developments which a few years have brought to light, it is hereafter destined to produce on the fate of the human family, it is hardly safe to calculate. It has already converted the solitary Mississippi and its tributaries into busy peopled thoroughfares, crowded with life, and bearing upon their bosoms the products of twenty degrees of latitude; it has claimed the

Atlantic as its element; melted the frosts of Cape Horn; waked the wilds of the Pacific ocean with its sonorous echoes, and brought the different nations of the earth in such close proximity as to compel them to feel the necessity of living in one common brotherhood.

CHIEF JUSTICE MARSHALL.

THE greater part of those who have filled important places among their fellow men, have evinced no small degree of anxiety to have the record of their life transmitted to posterity, with as much of praise and as little of censure as the nature of the subject would allow. Chief Justice Marshall, in this respect, differed from most other men, for although fully conscious of the possession of a high order of intellectual attainments, he neither sought occasion to display them, nor courted the admiration of those with whom he was associated. His whole life was spent in endeavoring to attain to a high order of excellence, yet not so much on account of the good opinion of mankind, as from an overweening desire to discharge to the uttermost the obligations imposed upon him by a sense of duty. These once discharged, he was willing to allow his reputation and reward to rest upon the act, without the garniture of praise to set it off, and hence he was indifferent to the collection of those materials necessary to prepare a minute and exact biography.

Nor have his immediate descendants evinced a greater desire to rescue from oblivion the familiar incidents of his life; and the materials composing his biography, are for the most part, collected from collateral sources, and not from the hearthstone, around which they would naturally be supposed to cluster.

The progenitors of Chief Justice Marshall, were from Wales. His grand-father, John Marshall, emigrated to America about the year 1730, and settled in Westmoreland county, Virginia, where he married, and pursued the occupation of a planter. He had four sons and five daughters, of whom Thomas, the father of the Chief Justice, was the eldest, and inherited the patrimonial estate, said to have been of trifling value. He did not reside upon it, but changed his place of abode to Fauquair county, while yet young, and married Miss Mary Keith, a connexion of the family of Randolphs, then of great distinction, and a lady of excellent accomplishments and superior mind.

John Marshall, the eldest of fifteen children, by this marriage, and the subject of this sketch, was born on the 24th of September, 1755. His boyhood, up to the age of fourteen, was passed on his father's plantation. His means of obtaining an education were exceedingly scanty, and this task necessarily devolved upon his father.

He was fortunate in a parent, who although not originally possessed of a good education, had, by dint of close application, overcome the deficiencies in some degree, of early youth, and maintained a respectable position among his acquaintances as a man of good sense, and some reading. As a practical surveyor, he had acquired a knowledge of mathematics and astronomy, and from taste was much inclined to general literature and poetry. Young Marshall, under this tutorage, obtained the rudiments of his education, and acquired a fondness for poetical reading. Before the age of twelve he had made himself familiar with the writings of Shakspeare, Milton, and many of the other classic English poets, and had

transcribed Pope's Essay on Man, much of which he quoted from memory. These were not conned over as tasks, but eagerly sought as sources of intense gratification, inspired by a deep sensibility and an enthusiastic and vigorous mind, aided by the enthusiasm of youth, and the delightful associations of the dreamy, yet rugged landscape by which he was surrounded.

At fourteen years of age, he was placed under the charge of Mr. Campbell, a clergyman, to be taught the Latin language. He remained with this gentleman but one year, during which he made fair progress in his studies. Among his class-mates at this school, was President Monroe. After his return to Oakhill, he received one year's additional instruction in Latin, from a Scottish clergyman, named Thompson, who resided in his father's family, which with the education he had received from his parents, constituted the entire amount of instruction it was in his power to obtain.

With this slender instruction in Latin he was left to his own unaided resources, yet with no other assistance than that afforded by his books, he not only finished reading Horace and Livy, which he had but just commenced, but made considerable progress in the attainment of a general knowledge of the Latin tongue, although his education in this particular was neither critical nor deep.

The literature of his own tongue, in the attainment of which he was aided by the instruction and conversation of his father, became his favorite object of study, and moulded his mind into an attachment for its higher specimens, which continued through life.

From early boyhood, he was passionately attached to ath-

letic exercises, and when not employed with his studies, spent his time in the open air, engaged in the excitement of field sports, or indulging in solitary musings amid the wild and fascinating scenery of his mountain home.

The private history of Marshall, like that of almost every other personage of distinction, of the era in which he lived, was fashioned, in a great degree, by the stirring events that environed him. The year 1764, was remarkable for the gloom it cast over the North American colonies, and its consequences upon their future destiny. In the spring of that year, the English Parliament passed resolutions to levy a stamp duty, which were communicated by their agent to the Virginia House of Burgesses, who appointed a special committee to prepare a remonstrance to parliament, and an address to the king. The resolutions reported expressed in strong terms the grounds on which the colonies claimed an exemption from taxation, and represented the act as burdensome and oppressive ; but the stunning effect at first produced upon the inhabitants of the colonies by this high-handed attempt to strip them of their liberties, and render them mere vassals to the British crown, was so overpowering as to render their action indecisive and suppliant, rather than bold and determined. The Virginia resolutions, as they passed the house, partook of the former character, and in a tone of great condescension, portrayed the depressed financial condition of the colony, and the suffering the act would in all likelihood produce. The remonstrance was narrowed down to a most humble petition, and by the fear of the assembly, was like Franklin's article under the hands of the publisher of the Public Advertiser, "deprived of its teeth and claws."

In the January of the following year, the passage of the stamp act, notwithstanding the appeals of the colonists, so far from arousing them to resistance, seemed to wither their last feeble hope and led them to look to submission under their injustice, as the only means left for them to pursue. Few were bold enough to harbor the thought of open resistance, and fewer still had the hardihood to express such a sentiment. Most persons looked to a change of policy in the home government as the only means of escape from the tyranny of this act, and although this hope was uncertain, it presented the only one to lighten the gloomy prospect before them. A prospect darkened by the destruction of their constitution and the most sacred safeguards of their liberty.

At this eventful moment Patrick Henry, fresh from his back woods home, clad in home-spun apparel, with an uncouth pronunciation and unpolished manners, appeared in the House of Burgesses as the champion for exemption from taxation, and by means of his wonderful powers as a statesman, and his majestic and masterly eloquence, succeeded in reinspiring the drooping hearts of his countrymen, and rousing them to an energy of action which never flagged until the complete overthrow of the power which had attempted to oppress them, had been accomplished. He introduced a series of resolutions, five in number, animadverting upon the stamp act, which, after a stormy debate, in which he was opposed by all the able leaders in the house, were passed by a single vote.

"By these resolutions," says Jefferson, "and his manner of upporting them, Mr. Henry took the lead out of the hands of those who had, theretofore, guided the proceedings of the

house, that is to say, of Pendleton, Wythe, Bland, and Randolph."

"It was indeed," adds Wirt, "the measure which raised him to the zenith of his glory. He had never before had a subject which entirely matched his genius, and was capable of drawing out the great powers of his mind. It was remarked of him throughout his life, that his talents never failed to rise with the occasion, and in proportion with the resistance which he had to encounter. The nicety of the vote on his last resolution proves that this was not a time to hold in reserve any part of his forces. It was indeed, an Alpine passage, under circumstances even more unpropitious than those of Hannibal; for he had to fight not only hand to hand, the powerful party who were already in possession of the heights, but at the same instant to cheer and animate the timid band of followers, that were trembling and fainting, and drawing back below him. It was an occasion that called upon him to put forth all his strength, and he did put it forth in such a manner as man never did before. The cords of argument, with which his adversaries frequently flattered themselves that they had bound him fast, became pack-threads in his hands. He burst them with as much ease as the unshorn Samson did the bands of the Philistines. He seized the pillars of the temple, shook them terribly, and seemed to threaten his opponents with ruin. It was an incessant storm of lightning and thunder which struck them aghast. The faint-hearted gathered courage from his countenance, and cowards became heroes while they gazed upon his exploits.

"It was in the midst of this magnificent debate, while he was descanting on the tyranny of this obnoxious act, that he

exclaimed in a voice of thunder, and with the look of a god, 'Cæsar had his Brutus—Charles the First his Cromwell—and George the Third'—('Treason,' cried the Speaker—treason! echoed from every part of the house. It was one of those trying moments which is decisive of character. Henry faltered not for an instant, but rising to a loftier attitude, and fixing on the Speaker an eye of the most determined fire, he finished his sentence with the firmest emphasis) — '*may profit by their example. If this be treason, make the most of it.*'"

Patrick Henry left town the same evening on which he had delivered this speech, and the vote by which the fifth and strongest resolution was passed, was re-considered and negatived on the following day. The effect however of the resolution continued, and the torch which had been lighted by Henry continued to burn with a brighter and brighter flame, until before the close of the year it lighted up the whole continent, and men grown less timid, began to express themselves in a more open manner, of the injustice and the means of redress. At the time when these resolutions were passed in the Virginia House of Burgesses, Marshall was entering upon his tenth year, and as the fire kindled by them was never permitted to subside on the colonial side of the revolution, he did little more than to partake of the spirit of the age in becoming a zealous advocate for maintaining the liberty of the colonies at the expense of a war which the ministry seemed blindly determined on bringing about.

Actuated by such sentiments, and fully alive to the importance of military defences, he had barely attained his eighteenth year before he associated himself with a volunteer

corps, for the purpose of acquiring that knowledge in arms which Washington had some years before declared no one should hesitate to use in defence of so valuable a blessing as their liberty. The battle of Lexington which took place on the 19th of April, 1775, put an end to all hopes of a peaceful termination to their troubles, and roused the colonies to a determination to resist with their lives, the oppressive burdens attempted to be laid upon them. "However trivial this affair may have been in itself," remarks Marshall, "it was in its consequences of the utmost importance. It was the commencement of a long and obstinate war, and it had no inconsiderable influence on that war, by increasing the confidence which the Americans felt in themselves, and encouraging opposition by the hope of its being successful. It supported the opinion which had been taken up with some degree of doubt, that courage and patriotism were ample substitutes for any deficiency in the knowledge of tactics, and that their skill as marksmen, gave them a great superiority over their adversaries."

When the news of this battle reached Virginia, Marshall, then a youth of nineteen, and acting as a lieutenant to a volunteer company, met his men for the purpose of mustering them, in the absence of the captain, about ten miles from his father's house, which journey he performed on foot. On this occasion his tall and slender form was set off by a light blue hunting shirt, with pantaloons of the same color, fringed with a white trimming. He wore rather jauntily, a round black hat, surmounted by a buck's tail, which partly shaded a face of dark complexion, marked by great good humor, and a more than ordinary degree of intelligence. His black hair, which

fell in great profusion over his shoulders, and his dark, penetrating eye, lit up with a sprightly animation, served to complete a figure indicative rather of agility than strength, in which however, he was far from being deficient. He carried in his hand a gun, whose breech he planted on the ground, as his comrades, who were much attached to him, gathered round, to learn the particulars of the Lexington affair, of which they had heard many rumors without being able to ascertain any thing very positive, as no one within the compass of many miles around was fortunate enough to take a newspaper.

After having satisfied their curiosity, he exercised them in a variety of military evolutions, and finally dismissed them with the observation, that if they wished further information about the battle of Lexington, he would tell them what he knew about it. The company gathered in a circle about him, while he narrated in a graphic manner the events connected with the battle, and terminated a speech of an hour's length, with the description of a plan for forming a Minute Battalion, he said he intended to join, and expected many of his comrades who then heard him, would likewise. He then challenged one of his companions to a game of quoits, and the day was closed with this and other athletic exercises.

He was shortly after appointed the lieutenant of a company in the Minute Battalion, formed of the militia, who agreed to encamp for a certain number of days at specified seasons, in order to accustom themselves to the use of arms and military discipline, so as to be ready to march at any time to the defence of the colony at a minute's notice. The services of this battalion were soon called into requisition by the preda-

tory warfare kept up by Lord Dunmore, and a small force of regulars under his command from the shipping, to which they had retreated in the harbor of Norfolk. The inhabitants being unable to resist their annoying attacks, sought the assistance of the upland troops, who speedily marched to their relief. "Hearing of their approach, Lord Dunmore took a very judicious position on the north side of Elizabeth river, at the great bridge, where it was necessary for the provincials to cross in order to reach Norfolk, at which place he had established himself in some force. Here he erected a small fort on a piece of firm ground, surrounded by a marsh, which was only accessible on either side by a long causeway. The American troops took post within cannon shot of the enemy, in a small village at the south end of the causeway, across which, just at its termination, they constructed a breastwork, but being without artillery, were unable to make any attempt upon the fort.

"In this position both parties continued for a few days, when Lord Dunmore, participating probably in that contempt for the Americans, which had been so freely expressed in the House of Commons, ordered Captain Fordyce, the commanding officer at the great bridge, though inferior in numbers, to storm the works of the provincials. Between daybreak and sunrise, this officer at the head of about sixty grenadiers of the fourteenth regiment, who led the column of the enemy, advanced on the causeway, with fixed bayonets against the breastwork. The alarm was immediately given, and as is the practice with raw troops, the bravest of the Americans rushed to the works, where, unmindful of order, they kept up a tremendous fire on the front of the British column. - Captain

Fordyce, though received so warmly in front, and taken in flank, by a small body of men who were collected by Colonel Stevens, of the Minute Battalion, and posted on an eminence something more than one hundred yards to the left, marched up under this terrible fire with great intrepidity, until he fell dead within a few steps of the breast work. The column immediately broke, but the British troops being covered in their retreat by the artillery of the fort, were not pursued. In this ill judged attack, every grenadier is said to have been killed or wounded, while the Americans did not lose a single man.”*

Marshall was present, and shared the fatigues and honors of this battle. It is needless to say, that these victories obtained at the outset of this struggle, however inconsiderable in themselves, inspired the raw soldiery of the colonies with great confidence in their own powers, and led the way to those more formidable deeds of valor recorded in the history of this unnatural but eventful warfare.

In the following year he received the appointment of lieutenant in the eleventh regiment of continental troops, and was shortly after promoted to the rank of captain. In this character he was present at the battle of Germantown—was one of the ill fed and suffering band, who were exposed to the rigors of a severe winter in the memorable campaign of Valley Forge—fought under Washington and La Fayette at the battles of Brandywine and Monmouth—was one of the covering party at the siege of Stoney Point, and officiated in the same capacity at the retreat of Major Lee, after the brilliant affair at Pawle’s Hook.

While there remained a need for his services, he freely and fearlessly bestowed them upon his country, but when

this exigency passed away, he gladly sought the opportunity to return to more quiet and congenial pursuits. In the winter of 1779, he retired to Virginia, with a number of other supernumerary officers, whose services were not at the moment required, and taking advantage of this interval, attended the law lectures given by Chancellor Wythe, at William and Mary's College, and soon after qualified to practice law, to which profession he was much attached. He had become a soldier from a high and imperious sense of duty—he turned his attention to the law from choice. Indeed, during his military campaigns, his legal services as a judge advocate, were frequently called into requisition, in which position he was brought into contact in the most favorable manner, with Washington, Hamilton, La Fayette, and the other distinguished leaders of the American army.

Marshall's great reasoning powers soon placed him in a very elevated position, at a bar composed of some of the ablest speakers of the day, while his personal popularity threw open to him the door of political preferment. He was elected to the State Legislature in the spring of 1782, and chosen during the same year, one of the Executive Council, and removed his residence to Richmond, where he married Miss Ambler, a daughter of the Treasurer of Virginia.

The duties of his profession had now become so arduous as to induce him to resign his place in the Executive Council to devote himself exclusively to it. During the three succeeding years, he was returned to the legislature, first from the county of Farquair, a greater compliment from the circumstance that he had ceased to reside there for several years, and second, from Richmond. In this body, among whose

members at that period, were the chaste and graceful Richard Henry Lee, the gifted Tazewell, the logical and cautious Madison, the accomplished Wythe, the eloquent Edmund Randolph, and the erratic, but mighty orator Patrick Henry, Marshall maintained an elevated position as a close reasoner and eloquent speaker.

The country had now thrown off the shackles of Great Britain, and after a long and harassing warfare of eight years' continuance, succeeded in maintaining their independence at home, and obtaining its acknowledgment by treaties with France, Holland, Prussia, Spain, and England herself. But the quiet of peace had no sooner succeeded the desolating tumult of war, than new and distracting questions arose, which seemed to threaten an anarchy more terrible than the war from which it had so fortunately emerged.

The thirteen States had with considerable reluctance, entered into a confederation for mutual defence against a common enemy, but no sooner had this enemy been defeated, than their jealousy in regard to the powers of this confederation returned with renewed acrimony. They had been too long the sufferers of an arbitrary power not to be jealous of so disposing of it as to lead to the remotest probability of its ever being exercised over them again. The delegated powers granted by the sovereign States were so confined as to render the acts of the confederation almost nugatory, and yet they were watched over by the legislatures of the States with a jealousy which seemed to apprehend the most direful consequences from their use. "A government depending upon thirteen distinct sovereignties for the preservation of the public faith, could not be rescued from ignominy and contempt but

by finding those sovereignties administered by men exempt from the passions incident to human nature."

The immediate consequences upon this state of things, were the destruction of public credit, disregard of private contracts, prostration of commerce, suspension of industrial pursuits, and a general stagnation in all kinds of business. What little money remained in the country was subject to a perpetual drain, to supply those manufactures of which the people stood in need and had nothing to give in return, while those brave veterans who had served to the great injury of their private affairs through the whole period of the war, and "whose blood and bravery had defended the liberties of their country," were left at its termination without pay or occupation, to drag out their days in a wretched poverty, or miserably perish for want of that justice which the confederation was too feeble to grant.

The country soon became divided between those who desired to put an end to these difficulties by granting an efficient power to redress them in the general government, and those who sought to retain that power with the States. On the side of those who desired a strong general government, was Washington, who did not believe the United States could long "exist as a nation, without lodging somewhere a power which would pervade the whole union in as energetic a manner as the authority of the State governments extended over the several States;" and by his side was Marshall, who declares that he "had grown up at a time when the love of the Union, and the resistance to the claims of Great Britain were the inseparable inmates of the same bosom; when patriotism and a strong fellow feeling with our suffering fellow-citizens of Bos-

ton, were identical; when the maxim—united we stand, divided we fall—was the maxim of every orthodox American.” “And,” he continues, “I had imbibed these sentiments so thoroughly that they constituted a part of my being. I carried them with me into the army, where I found myself associated with brave men, risking life and every thing valuable, in a common cause, believed by all to be most precious; and where I was confirmed in the habit of considering America as my country, and Congress as my government.”

When this question came up for discussion in the Assembly of Virginia, it is hardly necessary to say, that Marshall was found on the side of those who sought to extend the powers of the general government so as to bestow upon it a greater efficiency. While Washington was the acknowledged leader of this party in the country, Madison was its able champion in the Assembly. With a modesty equal to his greatness, Marshall was content to follow this able statesman, and second his endeavors to the best of his ability.

As the powers of the confederation grew weaker and weaker, as its influence was day by day waning, and the respect for it proportionably diminishing, and its feeble and spasmodic struggles plainly betokened its approaching and inevitable dissolution, those who believed they saw in the union of the States, the only safeguard for the perpetuation of their newly acquired freedom, with an effort worthy of the cause, united to call a convention to form a Constitution to govern the States. The confederation, which had been feeble in its action, and uncertain in its duration, was the result of a necessity which had now ceased to exist, and not a matter of deliberate choice. “Like many other human institutions,” says

Marshall, "it was productive neither in war nor in peace, of all the benefits which its sanguine advocates had expected. Had peace been made before any agreement for a permanent union was formed, it is far from being improbable that the different parts might have fallen asunder, and a dismemberment have taken place. If the confederation really preserved the idea of union until the good sense of the nation adopted a more efficient system, this service alone entitles that instrument to the respectful recollection of the American people, and its framers to their gratitude."

The convention assembled under this call, met at Philadelphia, and after several weeks of stormy debate, agreed upon the present Constitution of the United States, and placed it before the people for their adoption or rejection. This was a new phase brought into the political arena, and as all the members of the convention were not as cautious as Franklin in expressing their opinion of its demerits, the party opposed to it were armed with arguments which if not of the real importance they attached to them, were so plausible as to cause men to ponder deeply before giving their assent to a measure which might make all their previous struggles and privations worse than useless to themselves, and their posterity.

Nor indeed, can those who have witnessed the growth and prosperity of the United States, under the benign influences of this revered safeguard of liberty, form any just estimate of the trying circumstances in which their forefathers were placed at this eventful moment—a moment of the most breathless anxiety and portentous forebodings—a moment on which the future destiny of the North American Republic seemed to depend—a moment in which one false step would

have led the way to a despotism more terrible than that from which they had just been freed.

At a time like this, the convention of which Marshall was chosen a member, met to discuss this subject. The State of Virginia, from her high position in the confederacy, the devotion she had evinced in the struggles of the Revolution, and the acknowledged ability of her gifted and eloquent statesmen, was looked upon as the State whose vote would, in a great measure, determine the action of the other States in the adoption or rejection of this instrument. The parties for and against it were untiring in their exertions to elect candidates of their own particular mode of thinking, and when the convention had assembled, it was found that its most able and prominent members occupied different ranks, and were prepared to debate, sentence by sentence, the momentous document before them. The selection of Marshall as a member of this convention, furnishes one of the strongest commentaries that can be given, of the estimation in which he was held by those among whom he lived. The majority in his district were decidedly opposed to the adoption of the Constitution, yet no sooner did he announce himself as a candidate for a seat in the convention, than his personal friends rallied around him in such numbers as to give him a large majority of the votes, although his sentiments were known to be unequivocally in favor of the adoption of the instrument they were to assemble to discuss.

"Few assemblies," remarks the accomplished Justice Story, "have ever been convened under circumstances of a more solemn and imposing responsibility. It was understood that the vote of Virginia would have a principal, and perhaps

decisive influence upon several other States; and for some weeks the question of the adoption of the Constitution hung suspended upon the deliberations of that body. On one side were enlisted the powerful influence of Grayson, the strong and searching sense of George Mason, and the passionate and captivating eloquence of Patrick Henry. On the other side were the persuasive talents of George Nichols, the animated flow of Governor Randolph, the grave and sententious sagacity of Pendleton, the masculine logic of Marshall, and the consummate skill and various knowledge of Madison. Day after day, during the period of twenty-five days, the debate was continued with unabated ardor, and obstinate perseverance."

This convention, exhibiting a display of forensic ability seldom equalled by any deliberative body, opened its session at Richmond on the 2d day of June, 1788, by electing Mr. Pendleton as President. The debate was opened by Nichols, who was followed by Patrick Henry, as the leader of the opposition, in a speech marked by those wonderful powers of eloquence with which he was wont on great occasions to overpower the judgment of his hearers, and bind them as captives to his cause. There was something so fearfully impressive in the slow and measured tone in which he urged his objections to the Constitution, and so ominous in the deep and earnest manner in which he requested them to pause ere a step was taken which might plunge the country in misery, and destroy the bright hopes of the republic, that those whose minds were fixed as friends of the Constitution, began to waver, and it required all the eloquence and great reasoning powers of Madison, Randolph, Pendleton, Wythe, Henry Lee, and others,

to withstand the magical effect of his passionate declamation, and secure a small majority in favor of its adoption.

During these debates, Marshall, with a modesty peculiarly characteristic of the man, shrunk from assuming a forward position in a debate he was admirably calculated to sustain, and contented himself with following and sustaining his great leader, James Madison. "But on three great occasions, namely, the debates on the power of taxation, the power over the militia, and the power of the judiciary, Mr. Marshall gave free scope to his genius, and argued with a most commanding ability. We can trace, even through the dim lights reflected in the printed speeches, many of those sagacious and statesmanlike views, which have characterised his subsequent life. We see there the germs of those great constitutional principles, which he has since so largely contributed to establish, and which, if any thing can, will give immortality to this great instrument of our national liberties." *

It has been alleged that the strenuous support given by Marshall to the Constitution, sprung from a conscientious belief of the inability of an enlightened people to govern themselves without a strong form of government, to keep in check the turbulence of human passion. This opinion is not sustained by his reported speeches on this memorable occasion. "I conceive," says Marshall, in his reply to Patrick Henry. "that the object of the discussion now before us, is whether democracy or despotism be most eligible. Those who framed the system submitted to our investigation, and those who now support it, intend the establishment and security of the former. The friends of the Constitution claim the title of being firm

* North American Review, vol. xxvi, p. 12.

friends of liberty and the rights of mankind. They consider it the best means of protecting liberty. We sir, idolize democracy. Those who oppose it have bestowed eulogiums on monarchy. We prefer this system to any monarchy, because we are convinced that it has a greater tendency to secure our liberty and promote our happiness. We admire it because we think it a well regulated democracy."

When the labors of the convention were terminated by the adoption of the Constitution, Marshall determined to relinquish politics and devote himself exclusively to his profession, to which his own inclination as well as the demands of an increasing family, naturally led him. The earnest appeals of his friends, however, soon induced him to forego this prudent resolution, and enter anew the political arena. He was accordingly elected to the Legislature in 1788, and became the leading champion of the national administration in that body, against one of the most formidable and uncompromising oppositions it ever had to encounter. After serving in the Legislature for four consecutive years, he returned to private life, and soon became engaged in most of the important cases before the legal tribunals of Virginia.

"On the seventh of March," says Marshall, "the treaty of amity, commerce, and navigation between the United States and Great Britain, which had been signed by Lord Grenville and Mr. Jay, on the 19th of the preceding November, was received at the office of State.

"From his arrival in London, on the 15th of June, Mr. Jay had been assiduously and unremittingly employed on the arduous duties of his mission. By a deportment respectful, yet firm, mingling a decent deference for the government to

which he was deputed, with a proper regard for the dignity of his own, this minister avoided these little asperities which frequently embarrass measures of great concern, and smoothed the way to the adoption of those which were suggested by the real interests of both nations. Many and intricate were the points to be discussed. On some of them an agreement was found to be impracticable, but at length, a treaty was concluded which Mr. Jay declared to be best that was attainable, and which he believed it for the interests of the United States to accept. Indeed, it was scarcely possible to contemplate the evidences of extreme exasperation which were given in America, and the nature of the differences which subsisted between the two countries, without feeling a conviction that war was inevitable, should this attempt to adjust these differences prove unsuccessful.

“On Monday, the eighth of June, the day on which the Vice President and members of the Senate had been summoned to attend, a quorum of that body convened in the Senate chamber, and the treaty, with the documents connected with it, were submitted to their consideration, that they might ‘in their wisdom, decide whether they would advise and consent that it should be made.’

“On the twenty-fourth of June, after bestowing on the treaty the minute and laborious investigation, to which the magnitude and intricacy of the subject gave it such pretensions, the Senate by precisely a constitutional majority, advised and consented to its conditional ratification.”

This treaty became a subject of the most exciting discussion, and as soon as it was known that it would be recommended by the Executive to the Senate for its adoption, pub-

lic meetings were called, and other evidences of public disfavor manifested to prevent its execution. In 1795, Marshall was again elected to the Legislature without his assent, expressly on the ground of sustaining the Executive in his course concerning the treaty.

The hostile feeling to this treaty was so intense and so general in Virginia, that Marshall was urged by his friends to abstain from entering into the arena as its champion. No argument however, based upon a mere loss of popularity, or fear of opposing public sentiment, could divert him from the strict and unwavering line of duty, and while he came to the prudent resolve not to be the first to agitate so exciting a subject in the Legislature, he at the same time determined to sustain it, should it be brought up for discussion from another quarter.

Its opponents took an early opportunity to introduce it, and urged among other reasons of less weight, its want of constitutionality, and the dangerous power it bestowed upon the President, and a small part of the Senate, over the fate of the entire Republic. These arguments were urged with great ability and much show of reason, especially by those who from the beginning, were fearful of concentrating any useful power in the hands of the general government, lest it might in time sap the foundations of that liberty they had obtained at so great a sacrifice. They considered this as one of the first and most formidable encroachments upon their privileges, and plainly saw through the assumption of so much power, the glitter of a regal diadem, and the odious appendages of a hated monarchy.

Accustomed as we are at this day, to look upon Washington as far removed from any of that suspicion which attaches

to the motives of most men, we can hardly realize the stormy scenes through which his administration passed, or comprehend the assaults made upon it by its opponents. This opposition, and it was one founded in the full belief of the evil tendency of many of its measures, was particularly aimed against those which originated with the Secretary of the Treasury, always difficult to regulate, and especially so at the commencement of the operations of a new government.

“Throughout the United States,” remarks Marshall, “the party opposed to the Constitution had charged its advocates with a desire to establish a monarchy on the ruins of republican government; and the Constitution itself was alleged to contain principles which would prove the truth of this charge. The leaders of that party had therefore been ready from the instant the government came into operation, to discover in all its measures, those monarchical tendencies which they had perceived in the instrument they opposed.

“The salaries allowed to public officers, though so low as not to afford a decent maintenance to those who resided at the seat of government, were declared to be so enormously high as clearly to manifest a total disregard of that simplicity and economy which were characteristic of republics. The levées of the President, and the evening parties of Mrs. Washington, were said to be imitations of regal institutions, designed to accustom the American people to the pomp and manners of European courts.”

The speech in which Marshall sustained the constitutionality of the treaty making power, and the conduct of the President and his cabinet, is represented as one of the ablest displays he ever made of his great intellectual powers, and

so powerful were his arguments, so clear and logical his conclusions, and so convincing his facts and demonstrations, that his triumph was complete.

He had now acquired a distinguished reputation as an eminent member of the Virginia bar, and while his great learning and professional ability placed him in so elevated a position, his affectionate disposition, gentleness of nature, and simple and unostentatious manner, made him a favorite with all classes and political castes of his fellow citizens. The debates in which he had participated in the convention appointed to give its assent or dissent to the Constitution, and the active part he had since taken in defending the measures of the administration under it, led him to examine that instrument in all its varied and intricate relations, with the most minute and careful scrutiny, so that even at this period of his life, he took his position at the head of constitutional lawyers.

No one was more capable of appreciating his eminent legal abilities than Washington, who pressed upon him with much earnestness the post of Attorney General of the United States, which he declined, from a regard to the wants of his numerous and increasing family, requiring his close application to his profession at home, now a source of considerable profit, as well as honor. For the same reason, he declined to accept the position of Minister to France, offered to him by Washington, upon the recall of Mr. Monroe.

Upon the refusal of the French Directory to receive Mr. Pinckney, of South Carolina, as an accredited minister from this government, Mr. Adams, who had just succeeded Washington in the presidential chair, determined to conciliate that government, if possible, and sent an extraordinary mission,

composed of General Pinckney, Mr. Marshall, and Mr. Gerry. The posture of affairs appeared to be so critical, and the appeals of his friends were so urgent, that Marshall was induced to change the determination he had formed, not to accept public employment, and with great reluctance undertook the mission.

Mr. Jefferson, in regard to this negotiation, in his journal says :

“ March 2d, 1797.—I arrived at Philadelphia to qualify as Vice President, and called instantly on Mr. Adams, who lodged at Francis’s, in Fourth street. The next morning he returned my visit at Mr. Madison’s, where I lodged. He found me alone in my room, and shutting the door himself, he said he was glad to find me alone, for that he wished a free conversation with me. He entered immediately on an explanation of the situation of our affairs with France, and the danger of rupture with that nation—a rupture which would convulse the attachments of this country ; that he was impressed with the necessity of an immediate mission to the Directory ; that it would have been the first wish of his heart to have got me to go there, but that he supposed it was out of the question, as it did not seem justifiable for him to send away the person destined to take his place in case of accident to himself, nor decent to remove from competition one who was a rival in the public favor. That he had therefore concluded to send a mission, which, by its dignity, should satisfy France, and by its selection from the three great divisions of the continent, should satisfy all parts of the United States ; in short, that he had determined to join Gerry and Madison to Pinckney, and he wished me to consult Mr. Madison for

him. I told him, that as to myself, I concurred in the opinion of the impropriety of my leaving the post assigned, and that my inclinations, moreover, would never permit me to cross the Atlantic again; that I would, as he desired, consult Mr. Madison, but I feared it was desperate, as he had refused that mission on my leaving it, in General Washington's time, though it was kept open a twelve month for him. He said that if Mr. Madison should refuse, he would still appoint him, and leave the responsibility on him. I consulted Mr. Madison, who declined, as I expected. I think it was on Monday, the 6th of March, Mr. Adams and myself met at dinner, at General Washington's, and we happened in the evening, to rise from the table and come away together. As soon as we got into the street, I told him the event of my negotiation with Mr. Madison. He immediately said, that on consultation, some objection to that nomination had been raised which he had not contemplated; and was going on with excuses which evidently embarrassed him, when we came to Fifth street, where our road separated, his being down Market street, mine off along Fifth, and we took leave: and he never after that, said one word to me on the subject, or ever consulted me as to any measure of the government. The opinion I formed at the time on this transaction, was, that Mr. Adams, in the first moments of the enthusiasm of the occasion, (his inauguration,) forgot party sentiments, and as he never acted on any system, but was always governed by the feelings of the moment, he thought, for a moment, to steer impartially between the parties; that Monday, the 6th of March, being the first time he had met his cabinet, on expressing ideas of

this kind, he had been at once diverted from them, and returned to his former party views." *

The envoys extraordinary, charged with full instructions, and confided with authority to settle the differences betwixt the two countries, arrived in Paris on the 4th of October, 1797, and on the next day, verbally informed the minister of foreign affairs, of their arrival, and desired to know when he would be at leisure to receive one of their secretaries with the official notification of their appointment. The following day was named for this purpose, when their secretary bore a communication from them to the minister, desiring him to fix a time on which to receive them in an official manner.

The minister appointed one o'clock on the following day, to receive them, and they accordingly waited upon him at the specified time, at his house. The disposition in which the American envoys approached the minister of foreign affairs, may be judged from the commencement of the instructions received by them from their own government.

"It is known to you," begins these instructions, "that the people of the United States of America entertain a warm and sincere affection for the people of France, ever since their arms were united in the war with Great Britain, which ended in the full and formal acknowledgment of the independence of these States. It is known to you, that this affection was ardent when the French determined to reform their government and establish it on the basis of liberty—that liberty in which the people of the United States were born, and which, in the conclusion of the war above mentioned, was finally and firmly secured. It is known to you, that this affection rose to

* Jefferson's Works, vol. iv, p. 501.

enthusiasm, when the war was kindled between France and the powers of Europe, which were combined against her for the avowed purpose of restoring the monarchy, and every where vows were heard for the success of the French arms. Yet, during this period France expressed no wish that the United States should depart from their neutrality. And while no duty required us to enter into the war, and our best interests urged us to remain at peace, the government determined to take a neutral station.

* * * * *

“A government thus fair and upright in its principles, and just and impartial in its conduct, might have confidently hoped to be secure against formal official censure; but the United States have not been so fortunate. The acts of their government, in its various branches, though pure in principle, and impartial in operation, and conformable to the indispensable rights of sovereignty, have been assigned as the cause of the offensive and injurious measures of the French Republic. For proofs of the former, all the acts of the government may be vouched; while the aspersions so freely uttered by the French ministers, the refusal to hear the minister of the United States, specially charged to enter into amicable discussions on all topics of complaint, the decrees of the Executive Directory, and of their agents, the depredations on our commerce, and the violences against the persons of our citizens, are evidences of the latter. These injuries and depredations will constitute an important subject in your discussions with the French Republic; and for all these wrongs you will seek redress.”

They were told that the minister was engaged with the

Directory, and were requested by the secretary-general to defer their visit until three o'clock. They did so, and after waiting about ten minutes, were received and formally introduced. The minister informed them that the Directory had desired a report from him on American affairs, and that as soon as it was completed, which would be in a few days, they should be informed what course would be necessary for them to pursue.

They desired to know if cards of hospitality were necessary in the meantime. Talleyrand replied that they were, and should be delivered. He then rung for his secretary, and directed them to be prepared and sent to the ambassadors. The cards were presented on the following day, in a style corresponding with the official character of the representatives of the government of the United States, and thus terminated Marshall's first interview with Talleyrand.

During the course of the following week, they were told, in an apparently indirect manner, by Major Mountflorencia, that the Directory felt highly indignant at some portions of the President's message, made at the opening of the last session of Congress, and were led to believe that the Directory would not grant to them a public audience, but that some person might be appointed to treat with them on the subject of their mission. This information came in a pretty direct line from the office of the minister of foreign affairs, and was supposed to have originated with him, and therefore to assume an official character and corresponding importance.

At this point the official intercourse with the French government, was, for the present, suspended. A few days afterwards, General Pinckney was waited on by a gentleman who

was intimate with Talleyrand, and informed that another gentleman whom Pinckney had seen, was a person of consideration, and fully to be relied on. On the evening of the same day, the person alluded to, styled in the correspondence, Mr. X.* called, and after a little time, informed Pinckney, in a whisper, that he had a message from Talleyrand to communicate to him at his leisure. Pinckney immediately retired into an adjoining apartment, where he was told that his visitor came in no official character, but that having known M. Talleyrand, and being confident of his desire to settle the differences betwixt the two countries, he was ready, if it was thought proper, to suggest a plan, in confidence, which Talleyrand thought might answer that end.

He then expatiated on the state of feeling in the Directory towards the President on account of his message to Congress, and stated that two of them were highly exasperated and might prove intractable, but that through the good offices of M. Talleyrand, an accommodation might be made, and the ministers received, but that prior to this it was necessary to place the sum of twelve hundred thousand livres at the disposition of M. Talleyrand, to be put into the pockets of the members of the Directory, and the ministers, as a *douceur*. With these preliminaries agreed upon, he thought their differences might be arranged to the satisfaction of both governments.

General Pinckney replied, that his colleagues as well as himself, had from their entrance into the French metropolis, been treated with a marked disrespect, not at all compatible with

* The name of this gentleman has not been divulged, but he is known to have been a highly respectable citizen of Paris, who died there a few years since.

an amicable settlement of their differences; that it was the earnest desire of his government that these should be arranged, and that they had been entrusted with great latitude to obtain this by proper means, but that he could not consider any proposition before communicating it to his colleagues, and obtaining their opinion upon it.

Messrs. Marshall and Gerry, after being informed by General Pinckney of the overture made to him, agreed that Mr. Pinckney should request Mr. X. to make his proposals to the whole commission, in form, and for fear of mistakes, suggested that he should reduce them to writing. Mr. X. called in the evening, about six, with his propositions, which he said were not had by him immediately from M. Talleyrand, but through another gentleman in whom Talleyrand had great confidence, but whose name at this interview did not transpire.

The propositions were substantially those made to Mr. Pinckney, but inasmuch as he could not tell what parts of the President's message were exceptionable, it was agreed that he should breakfast with Mr. Gerry on the 21st, when he would be able to answer this and other inquiries more fully. Mr. X. called on the morning of the 20th to say that Mr. Bellamy, the confidential friend of Talleyrand, would wait upon the ministers himself, instead of communicating through him, as originally contemplated.

It was agreed that the conference should be held in Mr. Marshall's apartment, at seven o'clock. At the appointed hour, Mr. X., accompanied by Mr. Bellamy, whom he introduced as the confidential friend of Talleyrand, entered, and at once introduced the subject, which made the visit necessary. He stated that Talleyrand entertained the most friendly feel-

ing for America, heightened by the kindness and civility bestowed upon him when there, and that the impression left by these attentions upon his mind, made him solicitous to aid the present negotiations by his good offices with the Directory, who he said were extremely irritated against the United States government, and had neither acknowledged, nor authorized M. Talleyrand to have any communication with them. This prevented, he said, the minister from seeing them himself, but he had authorized him, as a friend, although he disavowed possessing any diplomatic character, to treat with them, and if they were disposed to make his suggestions the basis for a negotiation, to intercede in their behalf with the Directory, to obtain for them a public audience.

The propositions delivered to the ministers on this occasion, were certainly not marked by any disposition to redress the wrongs under which the American government supposed itself to be laboring, but on the contrary, appeared to begin and end in demands for reparation. "There is demanded a formal disavowal in writing, declaring that the speech of the citizen Barras, did not contain any thing offensive to the government of the United States, nor any thing which deserved the epithets contained in the whole paragraph. Secondly, reparation is demanded for the article by which it shall be declared, that the decree of the Directory there mentioned, did not contain any thing contrary to the treaty of 1778, and had none of those fatal consequences, that the paragraph reproaches to it. Thirdly, it is demanded that there shall be an acknowledgment in writing, of the depredations exercised on our trade by the English and French privateers. Fourthly, the government of France, faithful to the profession of public faith,

which it has made not to intermeddle in the internal affairs of foreign governments with which it is at peace, would look upon this paragraph as an attack upon its loyalty, if this was intended by the President. It demands in consequence, a formal declaration, that it is not the government of France, nor its agents, that this paragraph meant to designate. In consideration of these reparations, the French Republic is disposed to renew with the United States of America, a treaty, which shall place them reciprocally in the same state that they were in 1778."

But although the Directory felt the honor of France deeply injured by the imputations cast upon her in the message complained of, he did not hesitate to say, that the great hinge on which all future negotiation was to turn, was *money*. "*Il faut de l'argent*—remarked he emphatically—*il faut beaucoup d'argent.*" *It requires money—it requires much money.*

On the following morning they met at Mr. Gerry's at breakfast. Mr. Bellamy did not arrive until ten—he had passed the morning with Talleyrand. He informed the ministers that the Directory were so incensed that they insisted on the disavowals and reparations indicated by him on yesterday, before any steps could be had towards a negotiation. He remarked that M. Talleyrand, as well as himself, were well aware what pain such acknowledgments must give the American ministers, but that upon this point the Directors were inexorable, and were likely to continue so if a mode could not be discovered to change their determination. The ministers requested Mr. Bellamy to be more explicit on the point of satisfying the Directors, without making the acknowledgments which even Talleyrand considered so hu-

miliating. Mr. Bellamy replied that it was not for him to discover the mode, but that they must search for and suggest it themselves.

On Marshall's expressing doubts as to whether such a mode could be discovered in the paths in which he ordinarily trod, Mr. Bellamy remarked, that if he were allowed to express an opinion on the subject, although it was but the opinion of a private individual, he would suggest that it might be found in *money*. He added, that "the Directory were jealous of its own honor, and the honor of the nation, that it insisted on receiving the same respect with which we had treated the king; that this honor must be maintained in the manner before required, unless something more valuable were substituted in the place of these reparations, and that was *MONEY*."

Mr. Bellamy, with great consideration, proposed to help the ministers out of their dilemma, by suggesting that the government held thirty-two millions of florins of Dutch inscriptions, at the moment valued at ten shillings in the pound, which might be transferred to the government of the United States at a value of twenty shillings in the pound, by which means the United States would advance to France that sum which would be re-paid at the end of the war, by the Dutch government.

The ministers replied promptly, that although their powers were ample to negotiate a treaty, they were not at liberty to make a loan, and that as to the disavowal of the obnoxious part of the President's message, "the Constitution of the United States authorised and required the President to communicate his ideas on the affairs of the nation; that in obedience to the Constitution he had done so, so that they had

no power to confirm or invalidate any part of the President's speech; that such an attempt could produce no other effect than to make them ridiculous to the government and to the citizens at large of the United States, and to produce on the part of the President an immediate disavowal, and recall of them as his agents." They further stated that their government had endeavored and was still endeavoring, to maintain friendly relations with the French government, but that if France resisted all their overtures, and made war upon them, they should be obliged to defend themselves. With many protestations of personal regard on both sides, and an evident disappointment at the straight forward and unyielding manner in which the American ministers had received the wily suggestions of Talleyrand on the part of Mr. Bellamy, the interview was closed.

On the 27th of October the ministers received another visit from Mr. X., who expressed great surprise that no proposal had been made by them, and stated that the Directory would take a decided course towards America, if they could not find the means to reach them. The change in political affairs (a treaty with the Emperor of Russia had just been concluded) was alluded to as showing the prowess of France, and the necessity of conciliating her. The ministers could not or would not see the point of his argument, and after much conversation, he at last said, "gentlemen, you do not speak to the point; it is money—it is expected that you will offer money." The ministers replied, that they had already given an answer to that question. "No," replied he, "you have not, what is it?" "No—no," exclaimed the ministers, "not a sixpence."

Mr. X. begged them to consider the character of the men they had to treat with; men who disregarded the justice of their claims, and the arguments they might bring to sustain them—who even disregarded their own colonies, and over whom an influence could only be obtained by a judicious application of money.

Mr. Marshall replied that the conduct of the French government appeared to be such as to leave them but little hopes of success, even after an outlay of their money.

"What then?" replied X.; "the experiment must be tried, and if you fail in accomplishing your purpose, you will only have done what is an every day occurrence with lawyers who are paid fees, whether they succeed in establishing their cases or not; besides," continued he, "all the members of the Directory are not disposed to receive your money. Merlin, for instance, is paid from another quarter, and will not touch the *douceur* coming from you."

It was intimated that it was believed Merlin was paid by the owners of the privateers, to which suggestion Mr. X. nodded assent, and remarked that Hamburg, and other States of Europe were obliged to buy peace, and that even the United States had adopted a similar policy when treating with the Algerines and the Indians.

Marshall replied that this was undoubtedly true, but that in treating with them it was generally understood that money was to be the basis of the negotiation, and the whole nation so understood it, but that in treating with France, the government of the United States had supposed that such a proposition as had been repeatedly urged upon them, would give mortal offence.

Mr. X. expressed great surprise, and remarked that there was not an American in Paris who could not have informed the government on that point. Marshall hoped he would be excused for his little knowledge of these matters, but that he had been led to believe, and he thought this was the impression of his government, that France was acting from a pure and high minded principle. Mr. X. appeared surprised by this reply, and turning quickly to Pinckney, remarked, "Well sir, you have been a long time in France and Holland, what do you think of it?" Mr. Pinckney answered that he considered both Mr. Bellamy and himself as men of truth, and consequently there could be but one opinion on the subject. Mr. X. finding all hopes of obtaining the money from them, useless, remarked, that he did not blame them if they could maintain their position, which he doubted, and stated that he would communicate the result of the interview to the minister.

He begged to correct a false impression under which the ministers appeared to be laboring, before hand, that was, that they looked upon the money proposition as originating with the Directory, whereas it was not even suggested by a minister, but was proposed by him as a means of getting over the unpleasant dilemma of making an acknowledgment to the Directory, in relation to the message of the President, and besides, he added, that France had on a former occasion, loaned money to America. Mr. Pinckney told him that the case was entirely different; that America had proposed to France to loan her money, and had left it optional with her to do so or not, as she chose, but America was now directed to lend this money under the lash and coercion of France.

Marshall added with some feeling, that America was a great nation, and although not a populous one, she yet possessed great powers of self defence, and would deserve to loose them if she permitted them to be wrested from her, and that he was disposed to make at least, one manly struggle before parting with the national independence.

A day or two afterwards, Mr. Gerry was informed that M. Talleyrand had expressed surprise at not meeting the American ministers frequently in their private characters, when he might confer with them on the subjects of their mission. This information came direct from Talleyrand, and as it appeared to hold out a hope of reconciliation, the ministers did not feel themselves at liberty to reject it, and agreed that Mr. Gerry, who had formerly met Talleyrand in America, should wait upon him, which was done, without eliciting any additional overtures, but an abundance of expressions of great regard from the courteous diplomatist, for the welfare of America.

On the 29th Mr. X. again waited on them from Talleyrand, who he said was extremely anxious to serve them, and that if they would pay immediately the sum of money already proposed, for private use, by way of fees, they might be permitted to remain in Paris, as they then were, until one of their number could go to America and obtain the instructions of their government respecting the public loan, but that neither would the American property already taken be restored, nor any check be put on the future depredations on their commerce.

The straight forward Americans, and especially Marshall, felt exceedingly outraged at the haughty tone displayed by the French Directory, and could not refrain from saying that

France had already taken violently from America, more than fifteen millions of dollars, and had treated her as an enemy, and that now, when they had come with overtures of peace, to ask for compensation for injuries received, they were told that they must make humiliating concessions, grant a loan to the French government, and pay a fee of twelve hundred thousand livres, for the benefit of remaining in Paris to witness the plays and operas, while one of their number went home to ask the government to exhaust its resources without any hopes of reconciliation with the French government after all; that they would not mind the payment of a sum of money as a fee, if a reconciliation could be effected; but of that they saw no such hopes, and although they would be happy to see both Mr. X. and Mr. Bellamy, as private gentlemen, it would be useless to approach them with overtures of such a character as they had hitherto been the bearers.

After this conversation, the ministers resolved to have no more indirect intercourse with the government. Talleyrand finding that his purposes could not be effected in the mode he had hitherto made use of, sent Mr. X., who took occasion to say, that intelligence had been received from America which rendered it probable that all differences might have long since been settled if Colonel Burr and Mr. Madison had been sent in the place of the present commission, and he hinted, although as not coming from Talleyrand, that he was preparing a memorial to be sent to the United States, representing them as being opposed to any accommodation with France.

These intimations produced no little unpleasant feeling, which betrayed itself in some asperity of language, in which they begged Mr. X. to inform M. Talleyrand that he might be

assured that the fear of censure would never induce them to act in such a manner as to deserve it; but that they should pursue such a course as their consciences approved, and leave their reputation to sustain them. Whatever may have been the motives of Talleyrand in changing his diplomatic tactics, the only effect of the measure was to determine the American ministers to adhere more closely than ever to their resolve, not to hold any official intercourse with any other person than one filling an official position. The following extract from Marshall's Journal, shows that they adhered, as far as might be to this resolution :

“December 17, 1797.—I stepped into Mr. Gerry's apartments, where I saw Mr. Bellamy. He expressed his regret at having been disabled to dine with us at M. de Beaumarchais' by an inveterate tooth-ache. He then asked me whether I had seen M. de Beaumarchais lately. I told him not since he dined with us, and that he had left us much indisposed. He then observed that he had not known, until lately, that I was the advocate for that gentleman in his cause against the State of Virginia, and that M. de Beaumarchais, in consequence of that circumstance, had expressed sentiments of high regard for me. I replied that M. de Beaumarchais' cause was of great magnitude, very uncertain issue, and, consequently, that a portion of the interest he felt in it would very naturally be transferred to his advocate. He immediately said (low and apart) that M. de Beaumarchais had consented, provided his claim could be established, to sacrifice fifty thousand pounds sterling of it as the private gratification which had been required of us ; so that the gratification might be made without any actual loss to the American government. I answered

that a gratification on any terms, or in any form, was a subject which we approached with much fear and difficulty, as we were not authorized by our government to make one, nor had it been expected that one would be necessary; that I could not undertake to say whether my colleagues would consent to it unless it was accompanied by a full and entire recognition of the claims of our citizens, and a satisfactory arrangement on the object of our mission. He said that it was in the expectation of that event only that he had mentioned it. We parted, and I stated the conversation to General Pinckney, who was disinclined to any stipulation of the sort, and considered it as a renewal of the old reprobated system of indirect unauthorized negotiation.

“Having been originally the counsel of M. de Beaumarchais, I had determined (and so I had informed General Pinckney) that I would not, by my voice, establish any agreement in his favor; but that I would positively oppose any admission of the claim of any French citizen, if not accompanied with the admission of the claims of the American citizens for property captured and condemned for want of a *rolé d’équipage*. My reason for conceiving that this ought to be stipulated expressly, was a conviction that, if it was referred to commissioners, it would be committing absolutely to chance as complete a right as any individuals ever possessed. General Pinckney was against admitting the claim at any rate.

“After my return Mr. Gerry came into my room and told me that Mr. Bellamy had called on him to accompany him on a visit to M. Talleyrand; that he proposed seeing M. Talleyrand and returning the civility of the dinner, and endeavoring to bring about some intercourse between him and us.

"December 18.—General Pinckney and Mr. Gerry met in my room, and Mr. Gerry detailed the conversation mentioned in our public letter. The proposition relative to the claim of M. de Beaumarchais is entirely different from my understanding of it, in the very brief statement made to me by Mr. Belamy. We resolved that we would rigidly adhere to the rule we had adopted, to enter into no negotiation with persons not formally authorized to treat with us. We came also to the determination to prepare a letter to the Minister of Foreign Relations, stating the object of our mission, and discussing the subjects of difference between the two nations in like manner as if we had been actually received, and to close the letter with requesting the government to open the negotiation with us or to grant us our passports."

The task of preparing the letter above alluded to, dated 27th January, was confided to Marshall. It was signed jointly by the ministers, and despatched to the Minister of Foreign Affairs on the 31st of January, 1798.

In this able and elaborate state paper the grounds of the law authorizing the capture of neutral vessels having on board any of the products of the British Islands, under which so large an amount of the property of citizens of the United States had been seized and appropriated to the use of the French government, was reviewed with such a display of able reasoning, exactness of detail, demonstrative illustration, consummate skill in the adaptation of these illustrations, comprehensive acquaintance with the laws of nations, and withal conjoined to such evident earnestness of purpose and dignified moderation, as to place it in the very first rank among state papers; and had Marshall left behind no other memorial of the mascu-

line energy of his great mind, this document would be sufficient to place him in an elevated position as an able diplomatist, a skilful reasoner, an accomplished advocate, and a polished writer.

To this letter no reply was immediately given; and indeed, with all the diplomatic acumen of the wily Talleyrand, at that moment beyond question the most skilful, and perhaps least principled diplomatist of Europe, no refutation of its arguments could, with the least show of plausibility, be given. Still anxious to effect a reconciliation if possible, the ministers desired their secretary, Major Rutledge, to call upon Talleyrand and ascertain if he had any reply to make to the communication made to him on the 31st of January. Talleyrand informed Major Rutledge that the Directory had taken no action on the subject, and that he had therefore no communication to make; but that the ministers would be informed of their action when had. This interview was nearly three weeks after the delivery of the letter of the 27th to Talleyrand.

Before writing their final letter, they requested a personal interview with the minister, which was granted, and took place at his office on the 2d of March at three o'clock. In this interview Mr. Pinckney began the conversation by expressing an anxious solicitude to settle the differences between the two republics if possible. He alluded to the several propositions they had informally received, and which they found it impracticable to accede to, and asked if no other means could be suggested to effect so desirable an object.

Talleyrand, who spoke in a very low tone of voice, remarked that the French republic wished sincerely to see the relations

betwixt the United States government and itself established on a basis of solid and lasting friendship: as a proof of which he alluded to the readiness with which orders for passports had been given. He spoke of the manner in which the feelings of the Directory had been wounded by the address of Washington, as well as that of President Adams, and remarked that the original friendly feelings of the Directory had been greatly changed by the coldness and distance observed by the ministers themselves since their arrival in Paris, who, instead of seeing him frequently and consulting on the means by which difficulties might be removed, had waited on him but once, and appeared to be observing a cold formality, not at all compatible with the friendly intentions expressed.

Mr. Pinckney replied that, at the time their credentials were delivered, Talleyrand had informed them that the Directory would decide on their case in a few days, of which decision they should be notified; and that this had suspended their visits for some time. Talleyrand remarked that he did not allude to their public visits, which were not expected, but to their private ones, in which the matter might have been discussed, and suggestions interchanged that might have broken down the asperity of their official intercourse. He then added that the Directory would require some proof of their friendly disposition, and especially some amende for the language of the Presidents of the United States, which amende they should search for and propose; that it was not for him but them to discover the means, and alluded pretty plainly to the old subject of soothing these irritated feelings by that most potent placebo, MONEY.

After much conversation, in which Talleyrand attempted to

convince them of the necessity of exceeding their powers, he hinted that the manner in which they shielded themselves behind the strict letter of their instructions evinced any thing but the disposition to accommodate they professed.

Marshall told him that if the ministers of the United States had evinced any unwillingness to make use of every proper means to reconcile the two republics, or had shown any of the indifference attributed to them to search for the means of effecting so desirable an object, they had very imperfectly represented the feelings and wishes of their own government, which had manifested a sincere desire to accommodate the differences betwixt France and herself, by so many evidences as to leave no doubt on this subject. He remarked that the circumstance of their having patiently submitted so long to the aggressions made upon their commerce and the property of her citizens, as well as the appointment of this extraordinary mission, under the circumstances, afforded the strongest proof of this disposition; but if France would consider nothing as an evidence of this friendship short of the performance of an act which would not only exceed their instructions, but operate most injuriously upon their country, he could only say, that, while they would take no step to provoke further differences, they would, at the same time, abstain from being privy to any act in secret which, if made public, would compromise the neutrality it was so greatly to the interest of the United States government to maintain. He continued, that if the United States were actually leagued with France in war at this moment, inasmuch as they had neither ships nor men to be engaged in it, they must, from necessity, furnish money; therefore, to furnish money now, to be expended in the war,

was in fact to depart from neutrality and become a belligerent power. He had no doubt, however, if France would remove her interdict to their commerce, the American government would furnish the supplies at St. Domingo more abundantly than they were required; and if the loan was to be really payable after the war had terminated, no difference need exist on that point.

Upon taking leave, after an interview of an hour's length, Talleyrand again alluded to the circumstance of their not visiting him, and said that their not having had an audience with the Directory, need not have prevented it.

Marshall told him that it was a matter of no moment, whether they saw the Directory or not—that they were perfectly indifferent on that head; but that they conceived that until their public character was recognized by some competent authority as the representatives of their government, they might, in attempting to act as its ministers, subject themselves to unpleasant circumstances, they would not be willing to submit to. Talleyrand admitted the force of this remark, but said they might nevertheless discuss the subjects of difference as private individuals.

Another interview was asked and granted on the sixth at half past eleven o'clock, at which hour the commissioners again waited upon him. This interview, like the former ones, resulted in nothing definite. At its close, the ministers informed Talleyrand that two of their number would leave for America immediately, and lay the whole case before their own government if this course would be agreeable to the Directory, otherwise they would delay their return for some time longer. To this suggestion Talleyrand made no reply, but addressed

to them an answer to their letter of the 17th of January, dated the 18th of March, 1798, in which, after very cautiously expressing himself on some of the points at issue, he adds :

“ It is therefore, only in order to smooth the way of discussions that the undersigned has entered into the preceding explanations. It is with the same view, that he declares to the commissioners and envoys extraordinary, that notwithstanding the kind of prejudice which has been entertained with respect to them, the Executive Directory is disposed to treat with that one of the three whose opinions, presumed to be more impartial, promise in the course of the explanations, more of that reciprocal confidence, which is indispensable.”

This drew from the ministers a second letter, likewise prepared by Marshall, and stamped with the same great reasoning powers and skilful diplomacy which characterised his former one, and closes with the following words :

“ The undersigned observe with infinite regret, that the disposition manifested to treat with the minister who might be selected by this government, is not accompanied with any assurances of receding from those demands of money, heretofore made the consideration on which alone a cessation of hostility on American commerce could be obtained, to which the undersigned have not the power to accede, with which the United States will find it extremely difficult to comply, and a compliance with which would violate that faith pledged for the observance of neutrality, and would involve them in a disastrous war, with which they have no concern. Nor do you answer to the applications which have been made for compensation to the citizens of the United States for property which shall be proved to have been taken contrary to the law

of nations and existing treaties, otherwise than that you are willing to discuss cases where there has been a departure from certain principles, which principles in fact, involve almost every case.

“ You have signified, citizen minister, that the Executive Directory is disposed to treat with one of the envoys, and you hope that this overture will not be attended on the part of the undersigned with any serious difficulty. Every proposition of the Executive Directory is considered with the most minute and respectful attention. The result of a deliberation on this point is, that no one of the undersigned is authorised to take upon himself a negotiation evidently entrusted by the tenor of their powers and instructions, to the whole, nor are there any two of them who can propose to withdraw themselves from the task committed to them by their government, while there remains a possibility of performing it.

“ It is hoped that the prejudices said to have been conceived against the ministers of the United States, will be dissipated by the truths they have stated.

“ If in this hope they should be disappointed, and it should be the will of the Directory to order passports for the whole or any number of them, you will please to accompany such passports with letters of safe conduct, which will entirely protect from the cruisers of France, the vessels in which they may respectively sail, and give to their persons, suite and property, that perfect security to which the laws and usage of nations entitle them.”

The two members of the commission above alluded to, with whom Talleyrand had little hope of negotiating, were Pinckney and Marshall. That there might be no question as

to this, he addressed the following letter to Mr. Gerry, dated the 3d of April, 1798 :

“ I suppose, sir, that Messrs. Pinckney and Marshall have thought it useful and proper, in consequence of intimations given in the end of my note, of the 28th of Ventose last, and the obstacles which their known opinions have interposed to the desired reconciliation, to quit the territory of the Republic. On this supposition, I have the honor to point out to you the 5th or the 7th of this decade, to resume our reciprocal communications upon the interests of the French Republic and the United States of America.

“ Receive I pray you, the assurances of my perfect consideration.

C. H. MAU TALLEYRAND.”

This drew from Mr. Gerry a reply, in which he declined to be the medium of conveying the unpleasant intelligence it contained to his colleagues, or to take any measures that would be painful to them, informing him that it would be inconsistent with the line of conduct he had always observed, to remove the prejudice on the part of the government against them. He further stated that Marshall was waiting with great impatience for an answer to that part of their joint letter relating to safe conduct, in order to determine whether he should embark from France or Great Britain.

It was not the purpose either of the Directory or their minister, to furnish Marshall with the desired passport, and they hoped by retaining it to induce him to leave France without the odium of sending him away. Shortly after the date of this letter, Marshall embarked for America, and arrived at New York on the 17th of June, 1798.

The lengthy and curious despatches of the ministers had been

unexpectedly communicated to Congress and published, creating a warm sympathy for the ministers, and a feeling of great indignation against the French Directory. His return to his native land, therefore, was a time of great rejoicing. On his arrival at Philadelphia, he was escorted by the military of the city to his lodgings, and partook of a dinner given to him by the members of both houses of Congress, at which the celebrated toast, "Millions for defence, not one cent for tribute," was drank.

Jefferson, in a letter to Madison, strongly tinged by the politics of the day, thus speaks of his arrival at Philadelphia: "Marshall was received here with the utmost eclat. The Secretary of State and many carriages, with all the city cavalry, went to Frankfort to meet him, and on his arrival here, the bells rang till late in the night, and immense crowds were collected to see, and make part of the show, which was circuitously paraded through the streets, before he was set down at the city tavern."

The government was accused by its opponents of making the most of this affair, for the purpose of influencing the elections, and retaining itself in power. Jefferson, writing to Gerry, says, "It was truly a God-send to them and they made the most of it. Many thousand copies were printed and dispersed gratis, at the public expense, and the zealots for war co-operated so heartily, that there were instances of single individuals who printed and dispersed ten or twelve thousand copies at their own expense." That the government was extremely indignant, and manifested a disposition to close the negotiations abruptly, is evident from the following extract from a letter transmitted to Mr. Gerry by the Secre-

tary of State, on Mr. Marshall's arrival. "The respect due to yourselves and to your country, irresistibly required that you should turn your backs to a government that treated both with contempt, a contempt not diminished but aggravated by the flattering but insidious distinction in your favor, in disparagement of men of such respectable talents, untainted honor, and pure patriotism, as Generals Pinckney and Marshall, in whom their government and their country repose entire confidence, and especially when the real object of that distinction was to enable the French government, trampling on the authority and dignity of our own, to designate an envoy with whom they would condescend to negotiate. It is therefore to be regretted, that you did not concur with your colleagues in demanding passports to quit the territories of the French Republic, some time before they left Paris."

It may be proper to remark that when an unexpected publicity was given to these proceedings by the course of the American government, the French government denied any participation in it, and represented the American ministers as the dupes to a set of intriguers; but whoever will dispassionately examine the detailed statement of this affair, must arrive at the conclusion of the Secretary of State in his elaborate report concerning it, that the whole proceeding was carried on with the aid and connivance of the Executive Directory of France, and that Mr. Belamy, Hautville, and others, communicated to the American ministers no more than they were authorised to do by their minister of exterior relations, Talleyrand. No other possible reason can be assigned for the unexampled course of the Directory, in refusing to receive the ministers, and being always on the point of sending them

away, and yet in keeping them for months, suspended in this doubtful and awkward position, except to give their agents an opportunity to urge the acceptance of what Talleyrand justly designates "the disgusting proposition for money, for corrupt distribution," and it was because two of them, Marshall and Pinckney, were found to be superior to those intrigues, that they were sent away loaded with every species of indignity it was in the power of the officials of the Directory to heap upon them. It was also in the hope of obtaining a more ready acquiescence from Mr. Gerry, who Talleyrand remarked was too "indecisive and irresolute," that he was retained.

The party lines which had existed in the United States from the cessation of hostilities with England, had now become more distinct, and the feeling of animosity more manifest than at any previous period. The federalists, at the head of whom stood Adams, Hamilton, and Jay, were opposed by the republicans led on by Jefferson, Madison and Gallatin. The federalists, who at the time held possession of the government, were exceedingly anxious to induce a rupture with the French government, and were accused by their enemies of favoring the English pretensions, while the republican party as anxiously endeavored to maintain friendly relations with the former power, and were as vehemently assailed as being allied to the Jacobins of France. As usually happens during the excitement of high party times, the views and intentions of both parties were greatly misrepresented, and it only required union of effort to repel an invasion from without, to show the honorable sentiments which actuated the leaders of both these great parties. The communications of the American ministers at Paris, perhaps unwisely made

public, on the eve of the elections, produced an excitement more intense than any thing which had occurred since the declaration of the independence, and it required all the energy of the able leaders of the republican party, to prevent this inflammable material from lighting the whole country anew in the blaze of warfare, in the performance of which task they felt themselves obliged to throw a suspicion on the motives of Marshall and Pinckney, not justified by the dispassionate views we are enabled to take of the subject at this distant period. That it was clearly the policy of the American government, notwithstanding the injuries under which she was smarting, to abstain from open hostilities at that particular moment, and that the observance of this policy has had the effect of disentangling it from foreign alliances, is now too evident to admit of a doubt.

The struggle for political power between these two great parties was wrought up to the highest possible point of endurance about the time of Marshall's return to America; and so important were his political services considered to the federalists, with whom he was allied, that he was prevailed upon to relinquish the intention he had formed to abandon public life, and enter the political field as a candidate for Congress. He succeeded in obtaining his election, and became a participant in those exciting struggles which, in the winter of 1799 and 1800, terminated in the complete overthrow of the party then in power, and the triumph of those republican principles which, with a few brief exceptions, have continued to regulate the destinies of the country from that day until the present moment.

One of his first public duties, after the assembling of that body, was to announce the decease of his illustrious friend

General Washington, whose illness had been of such short duration that the news of his decease, which took place on the 14th of December, 1799, reached the capital before the announcement of his indisposition. The melancholy tidings were brought by a stage passenger, and produced, when communicated from member to member through the house, a scene of the deepest sorrow and confusion, amid which Marshall arose, and, in a voice trembling with emotion, alluded to the afflicting news just received, and added that "after receiving intelligence of a national calamity so heavy and afflicting, the House of Representatives can be but ill fitted for public business," and he therefore moved an adjournment.

On the succeeding day, after the reading of the journal, Marshall addressed to the house the following chaste and appropriate tribute to the memory of the illustrious deceased:

"The melancholy event which was yesterday announced with doubt has been rendered but too certain. Our WASHINGTON is no more! The hero, the patriot, and the sage of America—the man on whom, in time of danger, every eye was turned and all hopes were placed—lives now only in his own great actions, and in the hearts of an affectionate and afflicted people.

"If, sir, it had even not been usual openly to testify respect for the memory of those whom Heaven has selected as its instruments for dispensing good to man, yet, such has been the uncommon worth, and such the extraordinary incidents which have marked the life of him whose loss we deplore, that the whole American nation, impelled by the same feelings, would call with one voice for a public manifestation of that sorrow which is so deep and so universal.

“ More than any other individual, as much as to one individual was possible, has he contributed to found this, our wide-spreading empire, and to give to the Western World independence and freedom.

“ Having effected the great object for which he was placed at the head of our armies, we have seen him convert the sword into the ploughshare, and sink the soldier into the citizen.

“ When the debility of our federal system had become manifest, and the bonds which connected this vast continent were dissolving, we have seen him the chief of those patriots who formed for us a constitution which, by preserving the Union, will, I trust, substantiate and perpetuate those blessings which our revolution has promised to bestow.

“ In obedience to the general voice of his country calling him to preside over a great people, we have seen him once more quit the retirement he loved, and, in a season more stormy and tempestuous than war itself, with calm and wise determination, pursue the true interests of the nation, and contribute more than any other could contribute to the establishment of that system of policy which will, I trust, yet preserve our peace, our honor and our independence.

“ Having been twice unanimously chosen the Chief Magistrate of a free people, we have seen him, at a time when his re-election with universal suffrage could not be doubted, afford to the world a rare instance of moderation, by withdrawing from his high station to the peaceful walks of private life.

“ However the public confidence may change and the public affection fluctuate with respect to others, with respect to him they have, in war and in peace, in public and in private

life, been as steady as his own firm mind, as constant as his own exalted virtues.

“Let us, then, Mr. Speaker, pay the last tribute of respect and affection to our departed friend; let the Grand Council of the nation display those sentiments which the nation feels. For this purpose, I hold in my hand some resolutions which I take the liberty of offering to the house.”

With this brief but comprehensive exordium, he presented those resolutions, framed by General Lee, who was not in his seat at the time the intelligence of his death reached the house, and afterwards placed them in the hands of Marshall, in which the memorable and appropriate words occur, “*first in war, first in peace, and first in the hearts of his countrymen.*”

In alluding to this circumstance a few years later, in his Life of Washington, with an unaffected modesty peculiar to him, he takes care to give General Lee full credit for the authorship of the resolutions, but entirely abstains from any mention of his own name in connexion with the event.

“The House of Representatives,” remarks Mr. Binney, in his chaste eulogium on Judge Marshall, “in which Mr. Marshall had a seat, was perhaps never exceeded in the number of its accomplished debaters, or in the spirit with which they contended for the prize of public approbation. It was the last which convened in this city,* and furnished a continual banquet to such as had the taste to relish the encounter of minds of the first order stimulated to their highest efforts and sustained by the mutual consciousness of patriotic motives. The course of this eminent man as a member of it was such as all impartial persons must review without a censure. His

* Philadelphia.

principles of government were fixed, his confidence in the administration was great, his apprehensions of public mischief from a radical change of its measures were sincere, and he neither deviated from the path which these sentiments prescribed, nor faltered in it. But there was that about him which defended him from the assaults of party and raised him above its suspicions. If he was a party man, he was so by position, and not from temper or political views."

In these debates, in which the measures of the administration were assailed and defended with all the skill and ability which men of the highest order of talents could bring to bear upon them, Marshall took a prominent part, but there was one occasion on which his great reasoning powers stood forth more prominently than on any other. This was in the debate on the resolutions offered by Edward Livingston, of New York, censuring the Executive for the course pursued in the case of Nash, as contrary to law, and not justified by the treaty stipulations with Great Britain. The state of the case was this: a seaman, by the name of Thomas Nash, alias Jonathan Robbins, was accused of having been one of a party who committed a murder on board of the English war vessel, *Hermione*, while at sea, and of having afterwards sought refuge in the United States. Nash was traced to South Carolina, and was said to be identified as one of the murderers, although he bore the name of Jonathan Robbins, and claimed to be a native of Danbury, Connecticut, and an impressed seaman. Under these circumstances, the resident minister of England near the government of the United States, demanded Nash, as a fugitive from justice, under the 27th article of the treaty of 1794, entered into between the two governments.

He was apprehended, and the case was brought up before the United States District Judge of South Carolina, on a writ of habeas corpus. The evidence of his identity with Thomas Nash, appeared conclusive to the Judge, and under the directions of the President he was handed over to the British authorities, tried and executed.

The public mind, keenly sensitive to the subject of impressment, was greatly inflamed by the strictures of the opposition press, who thought the case not so clear as either the judge or the executive, and the mist which enshrouded it, subsequently dissipated, led many of the opposition to assume a strong ground, and hence the introduction of the resolutions which were advocated with great ability by Livingston, Gallatin and Nicholas on the one side, and Bayard and Marshall upon the other. No subject could have been more appropriate for Marshall than this, inasmuch as it embraced within its range of inquiry, an examination into the theory on which the laws of nations was founded, the principles which governed their diplomatic intercourse, the weight and exposition of treaties, and the extent of the authority confided in the executive department of the general government to execute them.

Judge Story pronounces it to be "one of the most consummate judicial arguments which was ever pronounced in the halls of legislation," and says of it that like Lord Mansfield's celebrated answer to the Prussian memorial, it was "Reponse sans repliquer, an answer so irresistible that it admitted no reply." The argument was conclusive, and settled then and forever this abstruse point of international law.

Jefferson, in a letter to Madison, writes, "The question has

been decided to-day, on Livingston's motion respecting Robbins: thirty-five for it, about sixty against it. Livingston, Nicholas and Gallatin distinguished themselves on one side, and J. Marshall greatly on the other."

Upon the rupture betwixt the President and his cabinet, which resulted in the removal from office of Mr. McHenry, Secretary of War, in May, 1800, Marshall was selected to fill his place. He had scarcely received the appointment, before the office of the Secretary of State became vacant from a similar cause, and the President conferred the appointment upon him. His official duties in the capacity of a cabinet minister were of short duration, as he was soon after selected to fill the more congenial as well as the more important public station, of Chief Justice of the United States. The circumstances under which this appointment was conferred upon him were peculiarly gratifying, and manifest the high appreciation in which his character and services were held by the President and the Senate. When the Chief Justiceship became vacant by the resignation of Judge Ellsworth, then in Europe, the President, with the advice of Marshall, offered the appointment to Mr. Jay, who declined accepting it. Without further consultation he returned the name of Marshall to the Senate as his successor, which body unanimously confirmed his nomination, and he was appointed Chief Justice on the 31st of January, 1801.

We have traced his progress through varied paths, requiring great energy of character, fixedness of purpose, and high intellectual attainments, and in all we have found him occupying a prominent, and in many, the foremost position, but none of these presented the difficulties and responsibilities

which met him at the outset of his career as the Chief Justice of the United States.

When he entered upon the discharge of its duties, the constitution, upon whose correct interpretation the value and justice of so many of its decisions depended, had as yet to be expounded. As a declaratory instrument, although usually expressed in a clear and unambiguous language, it admitted of a variety of interpretations, made more complex, by the sophistry with which ingenious argument had enshrouded its true meaning and intention. Its discussion had hitherto been rather of a legislative than of a judicial character, and it had much more frequently occupied the mind of the statesman than of the magistrate.

He had therefore to mark out a path for himself. That constitutional law now so clear and lucid in its expositions as to furnish unerring landmarks for the guidance of the legal profession was then in its infancy. Without precedents—without the aid of prior decisions or analogous cases—without the carefully digested opinions of able judges to throw light upon their minds in perplexity, or sustain them by inspiring a confidence in their own judgments—the court over which he presided assumed the responsibility of deciding questions not only of private importance and vast extent, but involving the very permanency of the union itself.

For the discharge of a duty so important as the presiding officer of such a tribunal, he was peculiarly fitted by his varied stores of legal learning, and the care he had previously taken to ascertain the true meaning and intent of the constitution. There were other qualities no less necessary, which he possessed in an eminent degree. He was conscientiously

faithful in the discharge of his judicial functions, patient in investigation, untiring in research, and unwavering in decision. To this rare combination, he joined to the most urbane and courteous manners, the simplest and most unaffected deportment.

If under these circumstances, errors in judgment were sometimes committed, and it will not be pretended that Judge Marshall and his able associates were infallible, or that their legal opinions have always been sustained, it was no more than was to be expected from the weakness of human infirmity, even when that weakness was counterbalanced by the high intellectual qualifications which adorned the life and gave inestimable value to the services of the subject of these remarks.

The first case involving a constitutional question, which came before the Supreme Court, after his appointment as its presiding officer, was that of *Marbury against Madison*, in which he thus asserts the supremacy of the constitution :

“The question, whether an act repugnant to the constitution, can become the law of the land, is a question deeply interesting to the United States ; but happily not of an intricacy proportioned to its interest. It seems only to recognize certain principles, supposed to have been long and well established to decide it.

“That the people have an original right to establish for their future government, such principles as in their opinion shall most conduce to their own happiness, is the basis on which the whole American fabric has been erected. The exercise of this original right is a very great exertion ; nor can it, nor ought it to be frequently repeated. The principles,

therefore, so established, are deemed fundamental. And as the authority from which they proceed is supreme, and can seldom act, they are designed to be permanent.

“This original and supreme will organizes the government, and assigns to different departments their respective powers. It may either stop here, or establish certain limits not to be transcended by those departments.

“The government of the United States is of the latter description. The powers of the legislature are defined and limited, and that those limits may not be mistaken or forgotten, the constitution is written. To what purpose are powers limited, and to what purpose is that limitation committed to writing, if these limits may at any time be passed by those intended to be restrained? The distinction between a government with limited and unlimited powers is abolished, if those limits do not confine the persons on whom they are imposed, and if acts prohibited and acts allowed, are of equal obligation. It is a proposition too plain to be contested, that the constitution controls any legislative act repugnant to it, or that the legislature may alter the constitution by an ordinary act.

“Between these alternatives there is no middle ground. The constitution is either a superior paramount law, unchangeable by ordinary means, or it is on a level with ordinary legislative acts, and like other acts, it is alterable, when the legislature shall please to alter it.

“If the former part of the alternative be true, then a legislative act contrary to the constitution is not law; if the latter part be true, then written constitutions are absurd attempts on the part of the people to limit a power in its own nature illimitable.

“Certainly all those who have framed written constitutions, contemplate them as forming the fundamental and paramount law of the nation, and consequently the theory of every such government must be that an act of the legislature repugnant to the constitution is void.

“This theory is essentially attached to a written constitution, and is consequently to be considered by this court as one of the fundamental principles of our society.”

Notwithstanding the closeness of reasoning and careful application of deduction in the above syllogistical statement, he has been accused, with some show of reason, of leaving the plain beaten path in which his case lay, to start suggestions from which conclusions might have followed, if the case had assumed a different aspect, or the court had possessed different powers. The very case before us furnishes an example of this mode of erratic reasoning and suggestive argument.

Mr. Adams, among a number of appointments made at the close of his presidency, and denominated midnight appointments, commissioned Mr. Marbury to act as a justice of the peace for the county of Washington. Mr. Jefferson found these appointments already signed and sealed, on the table of the Department of State, and directed his Secretary of State, Madison, not to deliver them. A writ of mandamus was applied for to the secretary, to direct him to deliver up the commission. The decision of the court was, that as it was an original process, they had no cognizance over it. Mr. Marshall in his opinion, goes on to say, that had the court this cognizance they should direct this delivery to be made. The second proposition is entirely gratuitous, because the case had not arisen, and could only have been intended to influence

the decision of some other court having the competent jurisdiction. It is not our purpose however, to analyze these numerous decisions in which, during his chief-justiceship, the court took cognizance of a greater number of questions affecting the constitution than can possibly arise again, and settled upon a permanent basis the principles of the constitution devised for the purpose of giving security to property, and promoting intercourse and trade between different States of the Union.

There are two of these decisions to which we would casually allude, on account of the great importance of the interests involved. The first of these is that of Dartmouth College, in which the following lucid exposition of that abstract phenomenon, a corporation, is given :

“ A corporation is an artificial being, invisible, intangible, and existing only in contemplation of law. Being the mere creature of law, it possesses only those properties which the charter of its creation confers upon it, either expressly, or as incidental to its very existence. These are such as are supposed best calculated to effect the object for which it was created—among the most important are, immortality, and if the expression may be allowed, individuality, properties by which a perpetual succession of many persons are considered as the same, and may act as a single individual.”

The question in this case was, whether the law of the State abolishing its old charter and substituting a new one was unconstitutional or not. The court decided that it was, and restored the college to its former privileges and immunities, thus securing from political influence or private intrigue those corporate endowments for public good either of charity or edu-

cation, so beneficial to society and so worthy of the generous motives which inspired them, which are found scattered by the hand of generous benevolence throughout our land.

The second is that of *Cohen* against the State of Virginia, in which two questions arose : first, whether a State could be brought as a defendant before the Supreme Court ; second, whether Congress could pass an act authorizing a corporation of its own creation to exercise a jurisdiction within a State paramount to the laws of the State. On both of these points the court decided in the affirmative. This decision, which may be considered one of the capital errors of Marshall's legal judgments, was far from being tamely acquiesced in by the State of Virginia, whose legislature prepared remonstrances against it, which were only delayed in their presentation by the exciting question of admitting Missouri into the Union, which immediately followed upon it, and diverted the thoughts of her legislature into a new channel.

This opinion was opposed by *Roane*, in a paper written with such ability that the original framer of the constitution, *Jefferson*, said that if it could be refuted, or the opinion of Marshall sustained, he would surrender human reason as a vain and useless faculty, given to bewilder and not to guide. The important point at issue was the constitutional boundaries betwixt the general and State governments, and where the power of the one begun and the other terminated.

This decision furnishes a striking illustration of the inability of the wisest statesman to foresee the ultimate result of his own political inventions. It could hardly have been believed that, with the jealousies prevailing among the State governments against the general government, and with the known opinion

that the State authorities reserved to themselves all powers not expressly delegated by that instrument, that within thirty years from its adoption the Supreme Court of the United States should feel itself authorized to interfere with the domestic concerns of a State, and direct the course of justice betwixt itself and its own citizens.

No one will hesitate to award to Marshall the possession of that comprehensive and unclouded intellect, that great good sense, that luminous power of ratiocination, or that perspicuity, force, and strength which placed him by the side of Lord Mansfield, and made him inferior to no judge that ever lived. But with the possession of these high attributes he likewise bore those prejudices almost inseparable from humanity. In politics he was a stern and uncompromising federalist. "In the maintenance of the principles of that school," says one who knew him well, "he was ready at all times to stand forth a determined advocate and supporter. On this subject he scorned all disguise, he affected no change of opinion, he sought no shelter from reproach." Whatever errors clouded his judgment or warped his reason, in the examination and preparation of those decisions on which he wished his memory to rest, may be traceable to this source, and to this alone. After a careful examination of this subject, we must acquit Marshall of having formed or expressed one legal principle, in his capacity as a judge, from party motives; but at the same time, candor compels us to add, that the influence of party prejudices, insensibly to himself, occasionally crept in and marred the beauty of those otherwise luminous legal decisions.

He discovered in the prerogatives of the high court over

which he presided a SUPREME power to declare and enforce the doctrines of a delegated one, supreme in itself so far as its boundaries extended, and with a disposition not to usurp that which had not been granted, he united a determination to be satisfied with nothing less than its just and full proportions. That this imaginary boundary might have been extended, nay, that it has been so, under the sanction of the high authority and commanding ability which presided over it, the history of the constitutional jurisprudence of the United States will bear ample testimony.

The laborious duties of the bench, during the early part of Marshall's judicial career, were shared with the no less arduous ones of literary composition. On him devolved the task of preparing a life of his illustrious and devoted friend, Washington, and most earnestly did he apply himself to the performance of this sacred obligation.

In its inception he discovered that the life of Washington was so closely identified with the history of the colonies, and so interwoven with public affairs, that it would be incomplete without a perspicuous account of the rise, progress, and condition of the colonies, and a detail of those transactions, in which he either became a participant or adviser.

This view led to the preparation of the History of the Colonies, which originally appeared as an introduction to the Life of Washington, but has since been published as a separate work.

"Our ideas of America," he remarks in the preface to a subsequent edition of this work, "of the character of our Revolution, of those who engaged in it, and of the struggles by which it was accomplished, would be imperfect without

some knowledge of our colonial history. No work had been published when this was undertaken, from which that knowledge could be collected. To have taken up the history of the United States when the command of the army was conferred on General Washington, would have been to introduce the reader abruptly in the midst of scenes and transactions, with the causes of which, and with the actors in them, he would naturally wish to be intimately acquainted. This was the apology of the author for the introductory volume to the Life of General Washington. Had the essays since written towards a general history of the English colonies, been then in the possession of the public, this volume would not have appeared."

The volume to which he thus modestly alludes, was followed by four others, devoted to the life of Washington, and the political events that environed him. The first of these was published in 1803, the last in 1807, and the whole occupied his leisure from the time he assumed his judicial functions, until their final completion. Subsequent editions have from time to time been published, and they are now, and probably always will be considered as standard works, on the subject of which they treat.

The peculiarities of their author are manifest on every page. There is no attempt to dazzle by studied elegance, harmonious diction, or brilliant ornament, but they are written in a plain and unpretending style, substantiated by historical facts, and possess great weight on account of conclusions so well drawn as to be extremely difficult of resistance, even when not borne out by their antecedent propositions. His own reflections are presented in such an unostentatious mode

as not to offend, but to add a charm to the facts he narrates; yet while we must admit their ability, and the candor with which they are expressed, we cannot deny, that like some of his legal opinions, they are colored by the political sentiments which were so firmly rooted in his breast.

From the date of his appointment until his decease, which took place on the 6th day of July, 1835, embracing a period of nearly thirty-five years, he continued to preside over the deliberations of that court, of which he was the brightest ornament. During this period of his chief-justiceship, which was longer than that of any other high judicial functionary with whose history we are acquainted, he was unremittingly employed in rearing that monument more durable than brass, which lives in his written constitutional opinions, and has won for him the title of the **EXPOUNDER OF THE CONSTITUTION**.

We know of no language in which to delineate his private character more forcible than the following description from the pen of his intimate friend and old associate, Judge Story. "He had great simplicity of character, manners, dress and deportment; and yet with a natural dignity that suppressed impertinence and silenced rudeness. His simplicity was never accompanied with that want of perception of what was right, and fit for the occasion; of that grace which wins respect, or that propriety which constitutes the essence of refined courtesy. And yet it had an exquisite *naivete* which charmed every one, and gave a sweetness to his familiar conversations, approaching to fascination. The first impression of a stranger upon his introduction to him, was generally that of disappointment. It seemed hardly credible, that such simplicity should be the accompaniment of such acknowledged

greatness. The consciousness of power was not there ; the air of office was not there ; there was no play of the lights or shades of rank ; no study of effect in tone or bearing. You saw at once that he never thought of himself, and that he was far more anxious to know others than to be known by them. You quitted him with increased reverence for human greatness, for in him it seemed inseparable from goodness. If vanity stood abashed in his presence, it was not that he rebuked it, but that his example showed its utter nothingness."

DAVID RITTENHOUSE, L. L. D.

It was the proud distinction of the seventeenth century, to bear witness to the most brilliant series of astronomical discoveries known in the entire history of the science. The culminated labors of previous ages, the establishment of scientific societies under the auspices of the enlightened governments of Europe, and the erection of royal astronomical observatories, had so far enlarged the plan of observation as to render its facts practicably applicable in the development of new phenomena and laws on a comprehensive scale hitherto unknown. The royal observatory at Paris, under La Hire and Cassini, and that at Greenwich, under Flamsteed and Halley, had done much towards concentrating the known truths of the science preparatory to a series of events which may be said not only to have established a new era in astronomy, but to have developed a new science, destined to assume a more boundless range and loftier flight than any other department of known physical knowledge. These were the discovery of the doctrine of gravitation, by Newton, and the invention of fluxions by Newton and Leibnitz. The results flowing from the establishment of these truths, rendered this age a more brilliant one in physical science than any which had preceded it, or can probably occur again. In the age immediately succeeding this, and while most of the doc-

trines of Newton were newly promulgated, and many of them held in dispute, America gave birth to a philosopher, whose introduction into the portals of science is so peculiar, as to merit a special attention.

This philosopher, whose name was David Rittenhouse, was born on the 8th of April, 1732, at Germantown, near Philadelphia, where his father exercised the craft of a paper maker. This occupation appears to have been an hereditary one in the family for many successive generations, and was transferred with them as a part of their patrimony, to the new world, from the ancient city of Arnheim, upon the Rhine.

Rittenhouse's ancestors emigrated to America at a very early period, probably as early as the year 1674. They accompanied a colony of Flemings, who settled at New York, but about 1690 transferred their residence to Pennsylvania, and established their paper mills at Germantown, where one or the other of the family has since continued to reside, engaged in the same time honored trade with their ancestors.

While David Rittenhouse was yet an infant, his father abandoned the business of paper making to his relatives, and removed to Norristown, about twenty miles distant from Philadelphia, where he purchased a small farm. Here David sprang into boyhood under the guidance of an exceedingly benevolent, but simple minded parent, whose ideas were limited to the few acres he was content to cultivate.

Mr. Barton, with an industry worthy of commendation, has traced back the family of Rittenhouse to the old walled city upon the Rhine, in the vain endeavor of upturning some long forgotten baronial trunk, whereby to connect it with a lineage more noble, if not more worthy, but his labors have terminated,

as we imagine the subject of this memoir would have desired them to terminate, in the discovery that the chief pride of the family consisted in the excellence of the material they were skilled in making, and that they boasted no higher distinction than that of simple burghers of Arnheim.

The mother of Rittenhouse, whose maiden name was Elizabeth Williams, was of Welch extraction, and was left an orphan at a very tender age. She is represented to have been possessed of a strong, but uncultivated mind. Her natural endowments were certainly superior to those of her husband's, but were neither polished nor exalted by the skill of education. Nothing appears to show that her family possessed any greater claim to distinction than that of the Rittenhouse's, and the mind of the philosopher seems to have risen like some tall oak to a towering height above all those with whom it was allied by birth or kindred.

David was intended by his father for the same occupation as himself, and it was not without many struggles that the parent, who like most of his countrymen settled in Pennsylvania not only at that early period but at the present day, looked upon the life of the farmer as more ennobling than that of the town tradesman, at last reluctantly consented to a different destination for his son.

As soon, therefore as his youthful labors could be of any service they were employed in assisting his father in his tasks of husbandry. The advantages for obtaining an education at the period when Rittenhouse was a youth, were exceedingly limited, and from those he derived but little aid beyond the simplest rudiments.

When but twelve years of age young Rittenhouse fell into

the undisturbed possession of a chest of carpenter's tools, belonging to a brother of his mother, who had died some years previous. This chest, in addition to these implements of trade, contained several elementary works on mathematical subjects, together with some manuscript calculations made by his deceased uncle, who had a taste for mathematics. What influence this fortunate discovery had upon the direction of the thoughts of the future philosopher, it is hard to determine. Certain it is, it could not have fallen into better hands, or have been more apposite to the pursuits it aided in developing. It would seem that mathematics with him was an intuitive gift, for whilst engaged in the labors of the field, his mind, even at this early age, was employed with mathematical and astronomical calculations, in the ardent pursuit of which he covered the fences as well as the handles of the plough, with figures, intended to demonstrate or realise the problems which engrossed his thoughts.

In connexion with this mathematical turn of mind, he possessed great mechanical ingenuity. This developed itself at the age of seven years, in the construction of a little water-wheel, of very creditable conception and workmanship, and when but seventeen years of age he had made the entire works of an excellent wooden clock.

His father, who now became satisfied of his extraordinary mechanical genius, and perhaps of his unfitness for agricultural pursuits, yielded to the oft repeated wish of his son to allow him to change his occupation. He was accordingly supplied with means to purchase a scanty outfit in the clock and philosophical instrument making business, and provided with a workshop by the road side, upon his father's farm.

Finding his stock of tools inadequate, he fabricated new ones, and among them many he had never seen. This occupation was looked upon by him rather as a means to enable him to indulge his enthusiastic devotion for mathematical studies, than as a pursuit for life, so that the labors of the day were scarcely terminated, ere he began a course of severe and unremitting study, frequently extended long after midnight.

While thus engaged, a young Irish clergyman of the Protestant faith, named Barton, established a school in the immediate vicinity of the Rittenhouse farm. This young gentleman became intimate with the family, and a warm friend of David's to whom he was drawn by many kindred associations of thought and feeling. It has been alleged, though without sufficient evidence, that through this acquaintanceship, Rittenhouse's talents were first revealed to the world, and in part made known to himself. It would be idle to attempt to prove by any serious argument, the entire and absolute independence of a mind constituted like that of Rittenhouse's, of any acquaintance it might have formed, or aid received from others.

Certainly the youthful and uneducated plough boy, who while treading in the furrows upturned by his plough, could direct his thoughts to the illimitable space that reposed in majestic beauty over his head, not in vain and childish wonderment, but in anxious endeavor to read its laws and discover the movements that regulated its countless bodies, was fully equal to the task of developing the genius that inspired these sublime reflections. To him, every pebble revealed by his plough-share, and every gentle flowret that grew in his pathway, furnished a lesson and proved an instructor.

That this acquaintance may have been serviceable as well as agreeable to both parties, is possible, but that it was the means of directing the genius of the youth who had already become known in his own neighborhood as "a mathematician and astronomer," is highly improbable.

The ties of friendship existing betwixt these two young friends became still further strengthened by the marriage of Barton to the sister of Rittenhouse, about two years after the commencement of their acquaintance. This marriage took place in the year 1753. Previous to its occurrence, Barton had removed to Philadelphia, and became one of the instructors in the seminary established through the exertions of Franklin. This seminary was the embryo of the present University of Pennsylvania, whose medical department at least, has long enjoyed a præminence far above all similar institutions in the United States.

We may judge of the progress made by Rittenhouse in his unaided mathematical studies, by the exalted position awarded to him by the learned world a few years later.

It may be proper in this connexion, to state that about the year 1749, this academy was established mainly through the instrumentality of Franklin, upon a very respectable footing, by resources obtained from private donations, and went into operation in 1750, under the superintendence of Dr. William Smith, its first provost, an English divine of great scientific attainments, who had received the degree of Doctor of Divinity from the University of Oxford, and subsequently from those of Aberdeen and Dublin. This gentleman, as will shortly be seen, was among the first to welcome Rittenhouse into the society of the learned men of his day, and continued

through many years, not only one of his first, but one of his most steadfast friends.

It is related of Rittenhouse by his friend, Doctor Rush, (and generally believed,) that, during this period of his life, his own mathematical reasonings developed to him the doctrine of fluxions, previously discovered by Newton and Leibnitz, but whose works and philosophical developments were as yet unknown to him. When about twenty-five years of age he read for the first time a copy of a translation of Newton's *Principia*, which, besides opening to his mind a mine of treasure, dispelled the pleasing dream (if ever indulged) of his agency in the discovery of this important mathematical theory.

With the scanty information we possess of the studies of Rittenhouse, it is impossible to determine the exact range of his thoughts or the consequences that flowed from them. It is very certain that he brought a mind of no ordinary character to the severe ordeal of mathematical reasoning, and that this mind was unaided by much previous education or many present advantages. Whether incidental hints were given of the theory of fluxions in those mathematical treatises he was fortunate enough to procure, without revealing the theory or the means of demonstrating it, or whether this was a mere rumor set afloat by idle gossip, is a conjecture which, in the absence of positive testimony, must be left open for each reader to determine, or to leave undetermined, as he deems most proper.

An increase of patronage soon induced Rittenhouse to extend his establishment and employ several workmen, and among the rest a younger brother named Benjamin, who,

under his direction, soon became an excellent instrument maker. David Rittenhouse was celebrated for the extreme exactness and finish of his workmanship, and enjoyed a high reputation in particular for the manufacture of chronometer clocks. One of these, of a construction peculiar to himself, is at present in the hall of the Philosophical Society at Philadelphia.

In the year 1763 he was employed by Mr. Richard Peters, the provincial secretary of the Governor of Pennsylvania, to determine the circle preparatory to a survey of the long disputed boundary line between Pennsylvania and Maryland, afterwards executed by Mason and Dixon in 1767-'8, and since grown into great notoriety as the dividing line betwixt the slaveholding and the non-slaveholding States of the Union.

In 1766 Rittenhouse was married to Miss Eleanor Coulson, a lady of the persuasion of "Friends," and a resident of the same neighborhood with himself. On this occasion his father abandoned the homestead, and made it a free gift to his son.

On the 17th of November of the following year the College of Philadelphia bestowed upon him the honorary degree of Master of Arts. That he had now established a considerable reputation as a scientific man may be seen from the following extract from the address made to him by the provost on the occasion of conferring this honorary degree: "The trustees of this college, (the faculty of professors cheerfully concurring,) being ever desirous to distinguish real merit, especially in the natives of this province, and well assured by the extraordinary progress and improvement which you have made, by a felicity of natural genius, in mechanics, mathematics, astronomy, and other liberal arts and sciences, all which you have

adorned by singular modesty and irreproachable morals, have authorized and required me to admit you to the honorary degree of Master of Arts."

His thoughts, for some time prior to this period, had been turned to the construction of an orrery on new principles. The first written communication extant on this subject is addressed to Mr. Barton, and appears to have been part of an antecedent correspondence on the same topic. It is dated January 28th, 1767: "I do not design a machine which will give the ignorant in astronomy a just view of the solar system, but would rather astonish the skilful and curious observer by a most accurate correspondence between the situations and motions of our little representatives of the heavenly bodies and the situations and motions of those bodies themselves. I would have my orrery really useful by making it capable of informing us truly of the astronomical phenomena for any particular point of time, which I do not find that any orrery yet made can do."

For the benefit of the general reader, we will remark that an orrery is an instrument or machine which, by means of a very complex combination of wheels, exhibits the different movements of the heavenly bodies. The term is derived from the Earl of Orrery, for whom one of those instruments was made by an astronomical instrument maker named Rowley, to whom the credit of the invention was given by Sir Richard Steele, and the name applied as a compliment to his generous and noble patron. It appears, however, that about the year 1715, an instrument similar to the one executed by Rowley was originated and made by Mr. George Graham, for

Prince Eugene, and it is generally supposed that Rowley merely copied it, with some additions of his own.

Planetary machines, having the earth as a centre, were in use at a very early period ; but the earliest one constructed on Copernicus' theory of the earth's motion was planned by Huygens in the latter part of the sixteenth century. Its movements were regulated by a carefully calculated wheel work, and it received its impulsion from a spring governed by a balance. This machine, from which the invention of the more intricate one of the orrery flowed, served for a long time as its pattern ; indeed the principal part of every orrery is the wheel work of the Huygens planetarium.

The persons who had succeeded in adding any thing to this instrument, before the invention of Rittenhouse's orrery, were the original inventor, Graham, Rowley, (of whom mention has already been made,) T. Wright, mathematical instrument maker to George II., who constructed the beautiful orrery at the Richmond Observatory, England, in 1733, and Mr. Benjamin Martin, who proposed to add what he termed a tellurian portion, described in his Mathematical Institutions, but never carried into execution by him.

A description of Rittenhouse's orrery, in general terms, was communicated to the American Philosophical Society on the 21st of March, 1768, by Dr. Smith, and appears as the first paper in the first volume of the Society's Transactions, and is as follows :

"This machine is intended to have three faces standing perpendicular to the horizon. That in the front to be four feet square, made of sheet brass curiously polished, silvered and painted in proper places and otherwise ornamented. From

the centre arises an axis, to support a gilded brass ball, intended to represent the *sun*. Round this ball move others, made of brass or ivory, to represent *planets*. They are to move in elliptical orbits, having the centre ball in one focus; and their motions to be sometimes swifter, and sometimes slower, as nearly according to the true law of an equable description of areas as is possible, without too great a complication of wheel work. The orbit of each planet is likewise to be properly inclined to those of the others, and their *aphelia* and *nodes* justly placed, and their velocities so accurately adjusted as not to differ sensibly from the tables of astronomy in some thousands of years.

“For the greater beauty of the instrument, the balls representing the planets are to be of considerable bigness; but so contrived that they may be taken off at pleasure and others much smaller and fitter for some purposes, put in their places.

“When the machine is put in motion, by the turning of a winch, there are three indexes, which point out the hour of the day, of the month and the year, (according to the *Julian* account) answering to that situation of the heavenly bodies which it then represented; and so continually for a period of five thousand years, either forward or backward.

“In order to know the true situation of a planet, at any particular time, the same set of balls are to be put each on its respective axis, then the winch to be turned round till each index points to the given time, then a small *telescope* made for the purpose is to be applied to the central ball, and directing it to the planet, its longitude and inclination will be seen on a large brass circle, silvered and properly graduated, representing the *zodiac*, and having a motion of one degree in

seventy-two years, agreeably to the precision of the *equinoxes*. So, likewise, by applying the telescope to the ball representing the *earth*, and directing it to any planet, then will both the longitude and latitude of that planet be pointed out, (by an index and graduated circle) as seen from the earth.

“The two lesser *faces*, are four feet in height, and two feet three inches in breadth. One of them represents and exhibits all the appearances of *Jupiter* and his satellites, their eclipses, transits, and inclinations. Likewise all the appearances of *Saturn*, with his ring and satellites. And the other represents all the phenomena of the *Moon*, particularly the exact time, quantity and duration of her eclipses, and those of the *Sun* occasioned by her interposition, with a most curious contrivance for exhibiting the appearance of a *solar eclipse*, at any particular place on the earth. Likewise the true place of the *Moon* in the signs, with her latitude and the place of her *apogee*, and *nodes*, and the *Sun*’s declination, equation of time, &c. It must be understood that all these motions are to correspond exactly with the celestial motions, and not to differ some degrees as in common orreries.

“The whole may be adjusted to, and kept in motion by a strong *pendulum clock*, nevertheless at liberty to be turned by the winch, and adjusted to any time, past and future.”

This description of the orrery was drawn up by Rittenhouse himself, but no mention is made of the exact means by which these results are continually produced at pleasure, nor of the combinations of wheel mechanism peculiar to this one. It is not a little singular that the labors of Rittenhouse in this particular should have been almost entirely overlooked by subsequent writers on astronomical subjects,

although those of a later period, as Joseph Priestly and Janvier's, have met with due consideration. This may be due to the circumstance that no detailed account of its mechanism was ever given to the public either by the author himself or the learned society under whose auspices it was first introduced to public attention.

It attracted at the time of its appearance much attention, and gave rise to a considerable competition by different colleges for its ultimate possession.

Whilst the College of Philadelphia was negotiating for its purchase, Princeton College, of New Jersey, sent a deputation, at the head of which was the president of the institution, Dr. Witherspoon, to Norriton to examine it, on the 23d of April, 1770. This committee were so much pleased with the instrument that they purchased it at once, and thus Princeton bore off the palm from Philadelphia in obtaining possession of the first orrery made by Rittenhouse, and beyond doubt the most complete one in the world.

Dr. Smith, the provost of the Philadelphia College, in a letter to Barton, written immediately after the sale of the orrery to Princeton College, remarks: "I never met with greater mortification than to find Mr. Rittenhouse had, in my absence, made a sort of agreement to let his orrery go to the Jersey college. I had constantly told him that if the Assembly did not take it, I would take it for our college, and would have paid him the full sum, should I have begged the money. I thought I could depend, as much as on any thing under the sun, that after Mr. Rittenhouse knew my intentions about it, he would not have listened to any proposal for disposing of it without advising me, and giving our college the first oppor-

tunity to purchase. I think Mr. Rittenhouse was never so little *himself* as to suffer himself to be taken off his guard on this occasion. This province is willing to honor him as her own."

Mr. Rittenhouse partook very sensibly of these unpleasant feelings, fearing lest he might be thought to act a part of cunning not in keeping with his character. He thus writes to Barton concerning it: "I would not on any account incur the imputation of cunning, nor are there probably many persons living who deserve it less; yet I am greatly mistaken if this matter does not, in the end, turn to my advantage, and consequently to your satisfaction. At present the point is settled as follows: I am to begin another immediately and finish it expeditiously for the college at Philadelphia. This I am not sorry for, since the making of a second will be but amusement compared with the first. And who knows but that the rest of the colonies may catch the contagion?"

Yet even this did not appear to satisfy the citizens of Philadelphia; for Dr. Smith, writing to Barton soon after, says: "The governor says the orrery shall not go; he would rather pay for it himself. He has ordered a meeting of the trustees on Tuesday next, and declares it as his opinion that we ought to have the *first* orrery, and not the second, even if the second should be best."

It will be seen by this correspondence how distinguished a reputation our philosopher had already obtained at home, and how anxious they were to preserve the first works of his genius as trophies for coming ages. One of the causes of this well-earned reputation we will now attempt to develope.

The attention of the learned world had for some time been

directed to a phenomena of rare occurrence, about to take place, and different governments had prepared observatories at different and distant parts of the earth, to note its visible appearances. This was the transit of Venus, which was to occur on the third of June, 1769. These transits may be thus briefly explained. Certain planets whose orbits are within the range of that of the earth's and are denominated inferior planets, at distant intervals pass a line, which beginning at the sun's centre, traverses their nodes, and penetrate the earth. When this juxtaposition occurs, they seem to pass over successive parts of the sun, and by their opacity to eclipse portions of its surface, exhibiting the appearances observed in ordinary eclipses.

The transits of Mercury are more frequent, but those of Venus are of rare occurrence. The first transit of Mercury was observed November 6th, 1631, including which thirty transits have already taken place, and six more will occur within the present century. The first transit of Venus was observed on December 4th, 1639, the second, 5th of June, 1761, and the third was now about to take place. No other has since occurred, nor is it expected before December 8th, 1874, so that upwards of a century will have elapsed betwixt the last and the coming appearance of this phenomena.

The advantages of observing these transits as pointed out by Halley, are in computing longitude, in ascertaining its actual distance from the earth and sun, and in correcting the tables of the planet itself.

The American Philosophical Society appointed a committee of its members in August, 1768, among whom was Rittenhouse, to observe and report on this transit. The committee

were divided into three sections, one of which was to be stationed at the light house near Cape Henlopen, on the Delaware bay, the second at an observatory erected for the occasion, in the State House gardens, at Philadelphia, and the third at Mr. Rittenhouse's residence, at Norriton, under his immediate superintendence. An appropriation for defraying the expenses incident to fitting up these observatories, was made by the society, and an additional sum voted by the legislative assembly. With these funds, and the great personal exertions of Dr. Smith, who was the chairman of the committee, the three observatories were completed. That at Norriton is the only one whose arrangements we shall stop to consider.

The edifice for this was erected near the dwelling of Rittenhouse. It was commenced in November, 1768, but from delays in procuring workmen, was not completed before the following April. Considerable difficulty presented itself in procuring the necessary instruments, but through Dr. Smith's exertions, an excellent Gregorian reflecting telescope, with Doland's Micrometer, the best in use, was sent from London for the purpose, by Hon. T. Penn, and afterwards presented in his name to the college. An astronomical quadrant of two and a half feet radius, made by Sisson, a Refractor of forty-two feet, its magnifying power about 140, an equal altitude instrument, its telescope three and a half feet focal length, with two horizontal hairs, and a vertical one in its focus, firmly supported on a stone pedestal, a transit telescope fixed in the meridian on an axis, with fine steel points, so that the hair in its focus could move in no other direction than along the meridian, and an excellent time piece, having for

its pendulum rod, a flat steel bar, with a bob weighing about twelve pounds, and vibrating in a small arch, were also procured. The last three were made by Rittenhouse himself.

With these arrangements for observation, joined to a complete skill in mechanics, and an astronomical and mathematical knowledge so extensive, that the use, management, and even construction of every necessary apparatus was perfectly familiar to him, he commenced a series of observations to test the accuracy of his instruments, and more particularly to determine the longitude of the observatory, and the correctness of his time.

In his report to Dr. Smith, he says, "I had for some time expected the use of an equal altitude instrument from Philadelphia, but finding I could not depend on having it, I fell to work, and made one of as simple a construction as I could. March 20th, this instrument was finished and put up out of doors, the observatory not being yet ready."

"I had, for some weeks before this, with my thirty-six feet Refractor, observed eclipses of Jupiter's satellites in such a manner, that though my equal altitude instrument was not finished, and consequently I could not set my time piece to the true noon, I should nevertheless be able to tell the time of those eclipses afterwards, when the instrument should be ready. For this purpose, I observed almost every fair evening, the time by the clock when the bright star in Orion disappeared behind a fixed obstacle, by applying my eye to a small sight-hole, made through a piece of brass fastened to a strong post.

"From this time to May 20th, the clock was altered several times; once taken down, cleaned, removed back to the

observatory, and regulated anew. Care was however taken to observe *equal altitudes* of the sun on the days preceding any visible eclipse of the first satellite, when the weather would permit.

"May 20th in the morning, the clock was set up for the last time, pretty near the mean time. It had no provision for preventing the irregularities arising from heat and cold, nor could I find leisure to apply any contrivance of this sort. This day I had likewise put wires instead of hairs, in the telescope of the equal altitude instrument, and the following are the observations taken both with it, and with the meridian or transit telescope."

The observations which exhibit great care and accuracy are omitted, as they would be of interest only to the scientific reader, who can consult them at large, in the Transactions of the American Philosophical Society, as well as those of the Royal Society, at London, for the year 1769.

In reporting these observations to the Society, Dr. Smith adds: "So far, I have given Mr. Rittenhouse's observations previous and subsequent to the *transit*, for ascertaining the going of his time piece, and fixing the latitude and longitude of the observatory, from February 15th to July 8th, by which it will appear what laudable diligence he hath used in these material articles."

With these careful preparations for exact observations made by Rittenhouse to aid them, the committee, consisting of Smith, Lukens and Sellers, met at Norriton, on Thursday, June 1st, intending to remain with Rittenhouse until the transit should have occurred. On that day, and several preceding it, the sky had been overcast with clouds, attended by

heavy showers, and the prospect for witnessing a phenomena which could never be observed by them again, appeared gloomy enough. On the evening of the day of their arrival however, by one of those transitions so common at this season of the year, the clouds were suddenly dispelled and the sky became beautifully serene.

The following day was spent in marking the foci of the telescopes, placing the reflector on a polar axis, giving supports to the ends of the refractors, taking diameters of the sun, and a variety of other minute preparations, prior to a concentration of the whole powers of their astronomical apparatus upon one phenomena of momentary duration, fraught with more important results than any other which could possibly occur to them again.

The heavens were watched by them with an anxiety they had never felt before. The previous heavy rains had given to the atmosphere an uncommon clearness and purity, and to the sky a transparent and azure blue, of enchanting loveliness. The rays of the sun shone out with a force as intense as the sky was clear and beautiful, and all nature seemed clothed in an aspect too lovely to continue thus for any length of time. It was not without considerable anxiety that they saw the sun sink in the west; nor did they retire to rest without those alternate emotions of hope and fear, which the coming of the remarkable event they were about to witness, heaven propitious, but which the passage of one little cloud over the sun's disc at an unfortunate moment might blot out from their view, was calculated to inspire.

We may readily enter into the feelings of delight with which they saw the sun arise on the following morning,

without a cloud to mar its brightness, or intercept the sight they were about to witness. Mr. Rittenhouse had, by previous calculation, made the external contact to be June 3d, 2h. 11'; for the latitude 40° N. and longitude 5h. W. of Greenwich. For half an hour before the arrival of this time, one or the other of the committee was engaged in watching the sun's limb where the planet was expected. As the moment approached, they arranged themselves before their instruments, having previously adopted the following signals, prepared by Dr. Smith, so that the silence, so important to their success, might remain unbroken.

"First. That each of us might the better exercise our own judgment, without being influenced, or thrown into any agitation by the others, it was agreed to transact every thing by signals, and that one should not know what another was doing. The situation of the telescopes, the two refractors being at some distance without the observatory, and the reflector within, favored this design.

"Secondly. Two persons, Mr. Sellers, one of our committee, and Mr. Archibald M'Clean, both well accustomed to matters of this kind, were placed at one window of the observatory, to count the clock and the signal from Mr. Lukens. Two of Mr. Rittenhouse's family, whom he had often employed to count the clock for him in his observations, were placed at another window to take his signal. My telescope was placed close by the clock, and I was to count its beats, and set down my own time. These preliminaries being settled, we prepared at two o'clock to sit down to our respective telescopes, or (I should rather say) lie down to the refractors, on account of the Sun's great height.

“As there was a large concourse of the inhabitants of the country, and many from the city, we were apprehensive that our scheme for silence might be defeated by some of them speaking, when they should see any of the signals for the contacts; and therefore we found it necessary to tell them that the success of our observation would depend on their keeping a profound silence till the contacts were over. And to do them justice, during the twelve minutes that ensued, there could not have been a more solemn pause of silence and expectation, if each individual had been waiting for the sentence that was to give him life or death. So regular and quiet was the whole, that far from hearing a whisper or word spoken, I did not even hear the feet of the counters, who passed behind me from the windows to the clock, and was surprised when I turned from my telescope to the clock, to find them all there before me, counting up their seconds to an even number; as I imagined, from the deep silence, that my associates had yet seen nothing of Venus.”

The following is Mr. Rittenhouse's account of the contacts:

“At 2h. 11' 39" per clock, the Rev. Mr. Barton of Lancaster, who assisted me at the telescope, on receiving my signal, as had been agreed, instantaneously communicated it to the counters at the window, by waving a handkerchief, who walking softly to the clock, counting seconds as they went along, noted down their times separately, agreeing to the same second. And three seconds sooner than this, to the best of my judgment, was the time when the least impression made by Venus on the Sun's limb, could be seen by my telescope.

“When the planet had advanced about one-third of its diameter on the Sun, as I was steadily viewing its progress, my

sight was suddenly attracted by a beam of light which broke through on that side of Venus yet off the sun. Its figure was that of a broad based pyramid, situated about forty or forty-five degrees on the limb of Venus, from a line passing through her centre and the Sun's, and to the left hand of that line, as seen through my telescope, which inverted. About the same time, the Sun's light began to spread round Venus on each side, from the points where their limbs intersected each other.

"As Venus advanced, the point of the pyramid still grew lower, its circular base wider, until it met the light which crept round from the points of intersection of the two limbs, so that when half the planet appeared on the Sun, the other half yet off, the Sun was entirely surrounded by a semicircular light, best defined on the side next to the body of Venus, which continually grew brighter till the end of the internal contact.

"Imagination cannot form any thing more beautifully serene and quiet than was the air during the whole time; nor did I ever see the Sun's limb more perfectly defined or more free from any tremulous motion; to which his great altitude undoubtedly contributed much.

"When the internal contact (as it is called) drew nigh, I foresaw that it would be very difficult to fix the time with any certainty, on account of the great breadth and brightness of the light which surrounded that part of Venus yet off the Sun. After some consideration, I resolved to judge as well as I could, of the coincidence of the limbs, and accordingly gave the signal for the internal contact at 2h. 28' 45" by the clock, and immediately began to count seconds, which any

one who has been accustomed to it, may do for a minute or two, pretty near the truth. In this manner I counted no less than $1' 32''$ before the effect of the atmosphere of Venus on the Sun's limb wholly disappeared, leaving that part of the limb as well defined as the rest. From this, I concluded that I had given the signal for the internal contact too soon; and the times given by the other observers at Norriton, confirm me in this opinion."

Whatever opinion may have been entertained of Rittenhouse's abilities prior to this period, it is evident that his observations on the transit of Venus not only placed him far above his associates in the investigation, but established for him a reputation as a careful, exact astronomer, and profound mathematician, second to none other in the age in which he lived. "There is not another society in the world that can boast of such a member as Rittenhouse;" writes a distinguished European astronomer to Dr. Franklin—"theorist enough to encounter the problems for determining the orbit of a comet, and also mechanic enough to make with his own hands an equal altitude instrument, a transit telescope and a time piece."

On the 9th of November, 1769, he was engaged with his old associates in observing a transit of Mercury at Norriton observatory, an account of which was communicated to the Philosophical Society by Dr. Smith, on behalf of the committee.

He was likewise associated with these gentlemen in determining the longitude of Norriton, in connexion with the survey of Mason and Dixon's line. The last communication made by him to the Philosophical Society, from Norriton, is

on some observations on a comet that appeared in June and July, 1770. This paper is dated at Norriton, July 24th, 1770.

In the autumn of 1770, he yielded to the urgent appeals made to him, and removed to Philadelphia. It had been the purpose of his friends, foremost among whom was Dr. Smith, to procure some governmental appointment, as a means of inducing him to take up his residence in Philadelphia. When the bill for establishing a loan office was before the assembly, in the winter of 1769-'70, Dr. Smith proposed to the speaker, Joseph Galloway, to insert the name of Rittenhouse as one of the three loan commissioners to be chosen, "telling him Mr. Rittenhouse ought to be encouraged to come to town, to take a lead in a manufacture, optical and mathematical, which never had been attempted in America, and drew thousands of pounds to England for instruments, often ill finished, and that it would redound to the honor of Philadelphia to take a lead in this, and of the assembly to encourage it. The speaker took the proposal well, and in short, so did every person applied to, and when the vote passed the day before yesterday, for the three trustees, the whole house rose for Rittenhouse's name."*

The assembly rose, as was feared, without finally passing the bill, and the friends of Rittenhouse were disappointed in procuring for him the commissionership, but neither himself nor his friends could fail to be gratified at the high mark of commendation bestowed upon him by the unanimous vote of the legislature, "and shews," adds Dr. Smith, "that a good man is capable of sometimes commanding all parties."

Dr. Smith's kind offices did not terminate here, for on the completion of his second orrery, March 15th, 1771, it was in-

* Smith's letter to Barton, 27th January, 1770.

roduced to the public in a course of lectures given by him, to defray the cost of its purchase. "I have been so busy," says Smith in a letter to Barton dated 23d of March, 1771, "these two months past, that I could not find a moment's leisure to write. A good deal of time was to be given to the public lectures, the orrery, and getting our dear friend Rittenhouse brought into as advantageous a light as possible, on his first entrance into this town as an inhabitant, all which has succeeded to our utmost wishes; and the notice taken of him by the province is equally to his honor and theirs. The loss of his wife has greatly disconcerted him; but we try to keep up his spirits under it."

How deeply he was affected by this incident mentioned in the concluding paragraph of this letter, may be seen by the following remark in a letter to Barton. "I suppose you have been informed that the assembly have made me a donation of three hundred pounds. This would have been very agreeable to me if my poor Eleanor had lived; but now, neither money—nor reputation—has any charms, though I must think them valuable, because absolutely necessary in this unhappy life."

He appears about this period to have contemplated a voyage (never accomplished) to Europe. In alluding to some domestic arrangements, made the subject of his thoughts by the death of his wife, to whom he was devotedly attached, he writes to Barton: "What adds to my misfortune, is the hurry of business I am engaged in, and know not how to get rid of. My design at present is to keep the children with me until I can conveniently take a ramble to Europe."

At the annual election of officers of the Philosophical Society, held in January, 1771, Rittenhouse was named as one

of the secretaries, having become eligible by his removal to Philadelphia. From the beginning of his connexion with this society, he was not only one of its most extensive contributors, but also one of its most devoted friends. The advantages which it presented in its library, and the constant association with its members to further his scientific pursuits, proved one of the chief inducements that drew him from his beloved retirement, to the less congenial life of the city. During the three following years he was occupied mainly with his philosophic studies, and was one of the most constant attendants upon its meetings. During this interval he likewise found time and opportunity to repair the loss he had experienced in the death of his wife, by the selection of a new one, to whom he was married in December, 1772. The name of this lady was Miss Hannah Jacobs. She died in October, 1799.

Rittenhouse, philosopher as he was, seemed entirely unsuited for a single life. With a chronic complaint for his constant and unremitting attendant, and deprived of the social intercourse to which he had heretofore been accustomed, the brief period of his widowhood proved to be the most unhappy of his life, and so great was his despondency that his friends began to entertain serious fear lest it might settle into a confirmed melancholy. The change in his domestic relations, together with his return to the active employments from which he had briefly retired, served to re-animate anew his flagging spirits, and restored him to his accustomed equanimity.

From this time he may be looked upon as enjoying the advantages already acquired from his previously established distinguished reputation, and his future official employments

seemed but a natural consequence of his admitted præminent qualifications, united to great private worth and probity of character.

The first of these public employments was conferred upon him by an act of the legislature, of the 26th of February, 1773, by which he was appointed the first of three commissioners named in the act, to make the Schuylkill navigable. His connexion with this commission continued eleven years.

On the 24th of October, 1774, he was chosen by Governor Penn, a commissioner on the part of Pennsylvania, to run a boundary line between that colony and New York. The disturbances which arose about this period, betwixt the colonies and the mother country, and which resulted in effecting so material a change in their relations, prevented him from doing any thing more than to determine the forty-third degree of north latitude, or north-eastern boundary of Pennsylvania.

Although a life of retirement, or one engaged in philosophic investigations, was that most congenial to his feelings, yet on the election of Franklin to the newly appointed Congress, he could not resist the appeal made to him by his friends to fill the position in the State Assembly, made vacant by that eminent personage. In 1776, immediately after the declaration of independence, he was appointed one of twenty-four justices for the State, and in that capacity become a member of the important council of safety, a position bestowed only on the most trustworthy and influential citizens.

In 1777 he received from the first legislature assembled under the new order of things, the appointment of State

Treasurer, by a unanimous vote, a flattering, and at the same time, fit reward for that "stern integrity and uniform adherence to those principles which gave rise to the American revolution" that had hitherto characterised him.

In 1779, he was appointed one of the commissioners to determine the boundary line then in dispute, between Pennsylvania and Virginia; in 1780, a trustee of the loan office of the State; in 1784, a commissioner for determining the western boundary of the State; in 1785, a commissioner under the authority of Congress to determine the line between Massachusetts and New York; and in 1792, the first director of the United States mint. This list includes only those official appointments, requiring his undivided attention for the time. In addition to these, he was honored by several others, which neither furnished much pecuniary compensation, nor required much attention, and are therefore not mentioned here.

Whilst thus engaged in multifarious labors, requiring no inconsiderable share of attention, he allowed no opportunity to pass disregarded, that could be profitably employed in advancing the cause of astronomical science. The results of these labors were communicated from time to time to the Philosophical Society, where they may be consulted by those who desire to prosecute the subject more minutely than our present purpose will permit us to do. In 1772 he received the honorary degree of A. M., from Princeton College; in 1782, he was elected a Fellow of the Academy of Arts and Sciences at Boston; in 1784, the honorary degree of Master of Arts was conferred on him by William and Mary College, in Virginia; in 1789, the degree of Doctor of Laws was conferred upon him by the College of New Jersey; on the first of January,

1790, he was chosen one of the Vice Presidents of the American Philosophical Society, and on the 17th of the following April, on the decease of Dr. Franklin, he was elected to the Presidency of that institution, which position he continued to fill until his death.

During this period of his life, when offices and honors flowed in upon him with such prodigal bounty, he occupied a modest, yet respectable dwelling on the corner of Arch and Seventh streets, in Philadelphia. His family circle consisted of his wife and two interesting daughters, by his former marriage, now grown into womanhood, with whom he was less a father than a companion, entering with a zest into the lighter amusements that attract the fancy of youth, that could hardly be anticipated from a grave philosopher. This alternative from grave to gay, was not confined to his intercourse with the younger members of his family, but extended itself to his reading, so that with a mind possessed of a capacity to fathom the most abstruse propositions of exact science, he derived an almost childish pleasure from the perusal of works of imagination and romance.

His reputation as a man of science, drew around him a large number of distinguished visitors, whom he always charmed by the simplicity of his manners, and the profoundness of his reasoning. He was a man of his day, as well as a philosopher, and so far from confining his mind to abstruse studies, was deeply read in most of the departments of polite learning.

Shortly after his appointment to the presidency of the Philosophical Society, his health, always delicate, became so much enfeebled that he was for the most part, confined to his own

house, occasionally taking a little out door recreation on a pleasant day, but usually limiting himself to the little flower garden adjoining his residence, tastefully adorned and kept in order by Mrs. Rittenhouse. He however, continued to preside at the meetings of the society, and discharged its duties with such a simplicity of character, and urbanity of disposition, as warmly to attach to himself every member of the institution.

He was seized, on the 22d of June, 1796, with an attack of cholera morbus, attended with a violent pain and sense of oppression in the region of the stomach, and more fever than usually attends this affection. His medical attendant, Dr. Barton, was sent for to visit him, and on his arrival, found him walking in his flower garden. The symptoms did not appear to be unusually severe, and he was led to believe that the attack would readily yield to medicine. Contrary to his expectations, he found him on the following day so much worse as to induce him to request additional medical aid, which was assented to, and Dr. Kuhn was called in consultation, although the patient himself had little hopes of relief from any source. The urgency of his febrile symptoms seemed to demand the abstraction of blood. This operation afforded but temporary relief, and he died on Sunday, the 26th of June, with scarce a struggle, aged sixty-four years.

He was buried, according to his particular request, without ostentation, beneath the pavement of the small observatory erected by him in his garden some years before, with a simple marble slab placed over him, bearing his name, age and time of decease. In person he was tall, slender, and somewhat delicately made. His forehead was high and expansive, his

nose large and slightly aquiline, his mouth well formed, but prominent, his chin broad and strong, and his eyes handsome and always lit up with an expression of mingled intelligence and benevolence. In the language of Thomas Jefferson, "genius, science, purity of morals, simplicity of manners, marked him as one of nature's best samples of the perfection she can cover under the human form."

If we were to estimate the value of Rittenhouse's labors by the amount of published matter he left behind, we should certainly not award him a very exalted place among the ranks of learned men, although the aggregate of his published contributions to science, principally made to the American Philosophical Society, is by no means small or trifling; but if we are to judge him by the substantial aids he has contributed to the advancement of astronomical knowledge, few men of his age are entitled to a more distinguished consideration than himself. He was not enabled, like Herschel, with superior instruments, to read the problem and reveal the phenomena of the milky way, which his genius had discovered, but which his defective telescope failed to penetrate; nor like his immediate predecessor in the presidential chair of the Philosophical Society, to call down the thunder-bolt from the clouds, and disarm it of its terrors, but with extraordinary skill and perseverance, he observed and recorded astronomical phenomena with an exactitude which alone gives value to the science. He was not the first observer of the transit of Venus, but what philosopher has done more to make this discovery valuable to the human race?

ELI WHITNEY.

WHITNEY furnishes an illustration of the truth, that a man may possess great genius, be an inventor of the highest order, and yet never write a book. Indeed his early occupations were far from favorable to literary pursuits, and even when at a later period he entered Yale College, as a student, we are unable to perceive that he evinced any great anxiety to excel as a literary man. On the contrary, his heart seems to have been centered in his favorite pursuit of mechanics, and his studies were prosecuted with avidity only when they tended to this point. He is said to have been an excellent mathematician, but was not remarkable for his attainments as a classical scholar.

His father, who resided at Westborough, in Massachusetts, at which place Eli Whitney was born on the 8th December, 1765, was a small farmer, and managed by dint of industry to rear an increasing family, frugally yet respectably, for the most part to pursue the same quiet occupation with himself. Whitney's early years were spent in assisting his father and brothers in their agricultural pursuits; but even at this early period he evinced a great fondness for mechanics, and exhibited unmistakeable evidences of a high order of inventive genius. As might naturally be supposed, these first attempts were expended in childish inventions. Some amu-

sing incidents are related of this portion of his life: among others it is said that his father having had occasion to absent himself from home for a few days, enquired on his return, as was his custom, into the occupation of his sons during his absence. He received a good account of all of them, except Eli, who, the housekeeper was reluctantly obliged to confess had been engaged in making *a fiddle*. "Alas," said the father with a sigh and an ominous shake of the head, "I fear that Eli will have to take out his portion in fiddles." Nor can we marvel much at the parent's forebodings, when we remember how frequent a shift this is with idle and worthless boys.

When but twelve or fourteen years of age, his reputation as a skilful mechanic had become so general, that the surrounding country people were in the habit of bringing to him jobs to execute, which he performed with such skill and neatness as always to satisfy, and not unfrequently to astonish his employers.

The revolutionary war by shutting out imports, raised the price of nails, which were much in demand, and exclusively wrought by hand. Whitney, when but sixteen, persuaded his father to furnish him with the necessary implements to engage in their manufacture. This occupation engaged him for upwards of two years, until the termination of the war, by bringing foreign imports in competition, greatly reduced the profits of his labor, and induced him to relinquish the business.

About this period he determined to acquire a collegiate education. By dint of much perseverance and labor, both as a mechanic and in conducting a small school, he succeeded in procuring the means necessary to defray his expenses, as

well as the education requisite to enable him to enter the Freshmen class at Yale College, in the spring of 1789, when about twenty-four years of age. It is needless to say that young Whitney, who was opposed in his scheme of college education by his family, and was obliged to procure, by his own exertions, the means of sustaining himself while engaged in its prosecution, was a diligent and laborious pupil. Here, as elsewhere, his favorite propensity manifested itself. The classics and polite literature were studied by him from necessity, but mathematics, and especially those branches immediately relating to mechanics, from choice. In the former he was never remarkable, in the latter always a proficient. With the chaste diction, and exquisite poetical imagery of the ancient writers, he had little sympathy. The sweet toned sentences of Theocritus, the pleasing harmony of Virgil, or the graceful measure of Horace, failed to inspire his mind with their lofty and soul-stirring aspirations; the abstruse theories of Euclid, Huygens, Newton and Euler, on the contrary, were to him sources of never ceasing enjoyment.

At college he did not abandon his craft in practical mechanism. One of the teachers mentioning on one occasion, his regret at being unable to exhibit to the class a very interesting experiment, on account of the condition of the philosophical apparatus, which no mechanic in the village was able to rectify, young Whitney volunteered the task, and soon placed the apparatus in complete order, very much to the gratification of his teachers, who warmly commended him for it.

He graduated in 1792, and in the autumn of the same year entered into an engagement with a gentleman who resided in the State of Georgia, to become a private tutor to his children.

He shortly after set out for that State, in order to comply with his engagement. Unfortunately he found the position he had left his home to fill, occupied by another, and was thus left without occupation or means, and almost friendless. It had been his good fortune, however to accompany a southern lady who, with her family, was returning from a northern tour, from New York to Savannah. This lady, who was the widow of General Greene, a distinguished officer of the Revolution, took a deep interest in the welfare of Whitney, and no sooner heard of his disappointment, than she kindly proposed to him to make her house his home, and immediately to commence the study of the law, according to his original intention. Whitney accepted this offer, and took up his residence with her accordingly.

An incident occurred here which completely changed all his views in relation to himself, for life, and called out that invention which will in all time rank his name among the greatest benefactors of his kind, and place him in the foremost rank of inventive geniuses. It was this: a party of gentlemen from the northern part of the State, who were on a visit to Mrs. Greene, were deprecating the almost perfect impracticability of so separating the seed from the upland cotton as to make its cultivation an object of importance. Mrs. Greene, who had on more occasions than one, witnessed Whitney's wonderful mechanical genius, advised her guests to appeal to him, assuring them at the same time, that he was able to accomplish whatever mechanical task he set himself about. The guests and the future inventor of the cotton-gin, were accordingly made acquainted with each other, and he was urged by them as well as by his kind friend and patroness,

to undertake the task. He modestly disclaimed any great knowledge of mechanics, but nevertheless agreed to make the attempt.

His first object was to procure a sample of the upland cotton, containing the seed, which as yet he had never seen. For this purpose he made a visit to Savannah, and having succeeded in procuring the cotton in this condition, returned to commence his experiments upon it. His intentions were confined to his patroness, Mrs. Greene, and Mr. Miller, a New England gentleman, who was then a tutor in Mrs. Greene's family, and afterwards became her husband. This gentleman not only warmly entered into his views, but on the completion of his model, became his partner in business, and furnished him with the capital necessary to carry on his operations. A separate room was assigned to him as his workshop, into which no persons were admitted except his two confidants, Mrs. Greene, (*who appears to have kept his secret,*) and Mr. Miller.

He thus speaks of his operations at this time, in a letter addressed to Mr. Jefferson, then Secretary of State, dated the 21st of November, 1793: "Within about ten days after my first conception of the plan, I made a small, though imperfect, model. Experiments with this encouraged me to make one on a larger scale; but the extreme difficulty of procuring workmen and proper materials in Georgia, prevented my completing the large one until some time in April last." The model machine, on a scale sufficiently large to test its practicability, was made entirely with his own hands, and with the rudest instruments. He was even obliged to draw out the

wire which entered into its composition,—none being sold at that early day in Savannah.

In order to understand the value of Whitney's invention, it will be necessary to give the reader a cursory view of the condition of the cotton growing interest at the time of its appearance. The cotton plant, (*Gossypium*,) is indigenous to many warm countries, and has been cultivated and spun and wove into clothing, in India and the islands of the Indian ocean, from periods of the remotest antiquity. Pliny speaks of the cotton used by the Egyptians in his day, and Columbus relates that the natives of the American continent possessed cotton clothes on his first discovery of the Western world. The most extensive manufacturers of cotton, however, during the middle ages, were the Spaniards; and at that period, when Spain ranked foremost in civilization and refinement, the delightful plains of Seville and Granada were no less celebrated for their picturesque beauty and high state of cultivation, than for the excellence of their cotton fabrics. England, at present the great manufacturing nation of the world, did not embark in this business before the middle of the seventeenth century. Its progress was exceedingly slow before the patent of Arkwright for spinning was obtained in 1769, and even with this additional aid its advance was far from rapid, until the discovery of Whitney, by rendering its culture an object of importance to the American States, at once inspired new life into this branch of English industry.

An idea of the estimate in which the cultivation of cotton was held at the termination of the last century, by our government, may be formed from the circumstance that Mr. Jay, in negotiating a commercial treaty with the English govern-

ment, permitted an article to be introduced into the treaty, in which the export was prohibited in American vessels, from the United States, of such articles as had formerly been supplied by the West Indies. Cotton was included among these articles ; its export at that period not being considered of importance enough to attract the particular attention of our distinguished minister.

There was at that period, as now, two distinct species of cotton grown in the United States, known by the appellations of the long and short stapled cotton. The best specimens of the former were called sea-island cotton, and were cultivated on the sandy islands which dot the shores of the lower Carolina and Georgia. It is supposed that the spray of the sea exercises a peculiar influence upon it, rendering its filaments longer and more silky, for when the plants are transplanted beyond the influence of the salt water, these qualities deteriorate. The *upland cotton*, or that grown in the interior, is known by the name of *short staple* or *bowed cotton*. This latter appellation was given to it on account of the process formerly made use of to separate the seeds from the filaments. This was by striking masses of the cotton pods violently with bows, to which strings were attached, for the purpose of loosening them before attempting to separate the seeds by hand. This cotton also goes by the name of green seed cotton, which adheres with much more tenacity to the filaments of cotton than the black seeds, which characterize the sea-island species. The soil adapted to the growth of the sea-island cotton, is necessarily limited, while almost every acre of land in the Southern tier of the United States, is fitted for the culture of the short stapled cotton. It was for the purpose of separating

the seed from this latter, that the *gin* of Whitney was invented, and on its success depended the applicability of the entire range of Southern States to the culture of this article.

It is not surprising, therefore, that this invention should have been hailed with the greatest raptures of delight, and that those who witnessed its capacity to perform in a single day the labors of many months, should have indulged in the most brilliant imaginings as to the future prospects of the cotton-planting interest of the United States; nor could it be otherwise than that its young inventor should have felt almost within his grasp that golden harvest which all were assured would flow in upon him through the medium of his auspicious and well-timed invention. Who then could have imagined that this brilliant picture was soon to be succeeded by one blackened with the clouds of misfortune and disappointment;—but we anticipate.

Whitney's machine consists of a cylinder whose surface is covered with iron teeth about three-fourths of an inch apart, presenting a serrated appearance. During the revolutions of the cylinder, these teeth seize upon the cotton wool, and draw it through the openings in a number of iron straps placed in contact with them, from the hopper into which the cotton is placed. These openings are made too narrow to permit the seeds to pass through, and they are brushed from the plates into a receiver below. The revolving cylinder, with the cotton attached, meets with a second cylinder, moving in an opposite direction, supplied with brushes, which removes the cotton from the teeth of the first cylinder. The teeth of the first gins were made of wire. The execution of this machine is as effective as its construction is simple. It may be

worked by men, oxen or water. A gin worked by oxen will clean from six to nine hundred pounds of cotton in a day. Before this invention it required the labor of a hand a day to separate the seed from fifty pounds of cotton.

Mr. Whitney, in a correspondence between Fulton and himself, with great justice remarks: "My invention was new and distinct from every other—it stood alone. It was not interwoven with any thing known before; and it can seldom happen that an invention or an improvement is so strongly marked, and can be so clearly and specially identified."

It had been deemed prudent not to exhibit the machine to the public until Mr. Whitney had secured his right to it by patent; but before he could complete his model, his workshop was broken open and the machine stolen. In this manner it became public before it was patented, and a horde of imitators immediately set to work to manufacture new ones upon his principle, but varying in some slight degree in order to avoid prosecutions under a patent. Considerable delay occurred in obtaining the patent, for although he presented his petition to the government on the 20th of June, 1793, it was not until nearly the close of that year that letters were issued confirming his right. In the meantime, a number of persons engaged in manufacturing the gins, and boldly claimed a title to the invention. By an arrangement entered into between Mr. Miller (who had become his partner,) and himself, he repaired to New England immediately after filing his petition for a patent, and commenced the manufacture of gins. Unfortunately they did not confine their views to the manufacture and sale of the gins themselves, but aimed to engross the entire business of cleaning the cotton. The

cotton planters the following year planted greatly increased crops of cotton, on the faith that they would be made marketable by the gin. The profits to be derived from the gin, one-third of the entire cotton crop, which was then selling at twenty-five cents per pound, seemed to open to them a road to magnificent and speedy wealth ; but a series of misfortunes occurred which closed up their immediate avenue to prosperity, and involved their concerns in a long train of perplexities and embarrassments.

In the spring of 1794, Whitney visited Georgia, for the purpose of effecting arrangements to clean the cotton crop from seeds with such machines as he had previously made. He returned shortly after to New Haven, Connecticut, and with limited means set about preparing gins, but so greatly had the crop increased, that he found himself unable to meet the demand. The planters were therefore, glad to resort to other machines, and in a short time they met with a formidable competition in several others based upon Whitney's original principle. The most pressing embarrassment under which they labored, was a want of money ; for although Mr. Miller had advanced some means, they seem, from their correspondence, to have been obliged to resort to all manner of expedients to supply the expenditures incident on the manufacture of the gins, frequently borrowing it at the most ruinous rates of interest. To add to his misfortunes, while on a visit at New York, he received information that his shop, together with all its contents, including a number of newly manufactured machines, and all his books and papers, had been consumed by fire, by which he was reduced to a state of complete insolvency.

As if to crush every remaining hope, a prejudice was excited in the minds of the manufacturers in England against the cotton cleaned by the gin. It was admitted to be freer from seeds than that picked by hands, but it was said to render the cotton fibre brittle, and thus weaken the texture of the fabric manufactured from it. The manufacturers refused to purchase it, and Mr. Miller writes to Mr. Whitney that "Every one is afraid of the cotton. Not a purchaser in Savannah will pay a full price for it. Even the merchants with whom I have made a contract for purchasing, begin to part with their money reluctantly."

Not only policy, but the very existence of their enterprise, dictated to Whitney to repair immediately to England for the purpose of disabusing the minds of the manufacturers on this prejudice against ginned cotton; yet so straitened were their finances at this period, that neither Whitney nor his partner appear to have retained sufficient credit to borrow the sum of money necessary to defray the expenses of the journey. His anxiety to visit England was so great, that he was five or six times on the point of departure during the year 1796, but was as frequently deterred by disappointments in obtaining the requisite means, and was finally obliged to abandon the journey altogether. As the hopes of accomplishing this undertaking diminished, his partner wrote to him from Georgia: "In the event of this failure, I can only take to myself the one half the blame which may attach itself to our misplaced confidence in the public opinion. I confess myself to have been entirely deceived in supposing that an egregious error, and a general deception, with regard to the quality of our cotton, could not long continue to influence the whole of the

manufacturing, the mercantile, and the planting interests, against us. But the reverse of this fact, allowing the staple of our cotton to be uninjured, has, to our sorrow, proved true, and I have long apprehended that our ruin would be the inevitable consequence.”*

The letter from which this extract is made, bears date in the spring of 1797, at which period they appear to have had no less than twenty-eight gins, calculated for horse and water power, lying idle for want of employment, in the State of Georgia. The only hope of restoring the value of this property, upon which had been expended many thousand dollars more than either Whitney or his partner were worth, was in reviving the lost confidence in the cotton ginned by them. So long as the article continued unmarketable the planters hesitated to make use of the machine, and the merchants to purchase it. The hope indulged in Mr. Miller's letter, that this error would not long influence the whole of the manufacturing interest against them, at last began to be realized. A reaction as gratifying as it was sudden, now set decidedly in favor of the cotton cleaned by the gin, and the merchants, who had but a short time previous looked with suspicion upon the article, eagerly sought it out as most desirable for the manufacturers' purposes. Their gins were again restored to partial employment, and fortune, which had so long withheld its favors, seemed at last about to dawn upon their hopes in cloudless brilliancy.

But here too, as at every previous step of their progress, they were doomed to encounter bitter disappointments. The difficulties in procuring the gins, encouraged a large number

*Silliman's Journal.

of unprincipled persons to attempt a violation of their patent, on the most flimsy pretences, and they were compelled to institute a series of harassing and interminable lawsuits against the infringers of the patent, to protect themselves. The first of these trials, to the surprise not only of the plaintiff, but the defendant, was decided against Whitney's patent. The popular opinion seemed to be with them, and the judge charged the jury to bring in a verdict in favor of the plaintiff, yet after an hour's consultation they rendered a verdict against the instructions of the court, on the ground that the violation of the law consisted in the several items of "making, devising, and using, or selling," while their charge consisted in "using" alone. The failure of this suit increased the encouragement to disregard the patent, and in a short time the whole cotton-growing portions of Georgia and South Carolina, became flooded with surreptitious gins to such an extent as not only to prevent the sale of the original gin, but almost to preclude its use.

The next step taken by Whitney was, to appeal to the legislature of South Carolina to purchase his patent for the State, to which measure he had been urged by a number of influential citizens, for one hundred thousand dollars. The result of this appeal may be learned from a letter addressed by him to a friend on the subject, immediately after the adjournment of the session of the legislature which acted on the subject:

"I have been at this place a little more than two weeks, attending the legislature. They closed their session at ten o'clock last evening. A few hours previous to their adjournment, they voted to purchase, for the State of South Carolina,

my patent right to the machine for cleaning cotton, at fifty thousand dollars, of which sum, *twenty thousand is to be paid in hand, and the remainder in three annual payments, of ten thousand dollars each.*"

The States of North Carolina and Tennessee, each of which had now directed their attention to the culture of cotton, seemed to be willing to award him a meed of justice, and after numerous public meetings in both of these States, at one of which the late president, Andrew Jackson, presided, the subject was formally brought before both legislatures. The legislature of North Carolina laid a tax of two shillings and six pence on every saw used in ginning cotton, for five years, to be collected by the State and to be paid to Whitney. The tax levied by the State of Tennessee was thirty-seven and a half cents on every saw used in the State, to be continued for four years, and collected as in the State of North Carolina.

Thus after so many years of toil and disappointment, in which thousands of individuals had become enriched through the medium of his invention, the projecter seemed on the eve of realizing some substantial compensation for his labors. But here too, the sparkling cup of prosperity was presented to his parched lips only to be snatched away ere he could quaff its vivifying draught. The State of South Carolina, by a subsequent law, not only suspended the payment of the sums yet due under its former law, but directed that a suit should be instituted against Whitney and his partner, for the recovery of the money already paid to them. The grounds of this second law, were, first, that it was a matter of doubt whether the gin of Whitney was an original invention, and second, his failure to comply with the law by furnishing within

a specified time two model machines to the State. This second law was subsequently repealed, and full justice awarded to him by the State, but the blow which this act of the legislature inflicted upon him was severely felt. The States of North Carolina and Tennessee, on witnessing the action of South Carolina, wavered in their course, and failed to collect with regularity the tax imposed by their legislatures. In addition to this, the suits, of which some hundred were instituted, were seriously affected, and required greater exertions and a larger amount of proof to sustain them.

We do not intend to follow Mr. Whitney through these numerous law suits, but will content ourselves with giving the opinion of Judge Johnson, which sets forth clearly and and concisely the facts of the case in which it was given, and will with equal force apply to all the others. The case in which this opinion was delivered, was that of Whitney vs. Fort, tried in Savannah, in December, 1807, asking for an injunction.

“The complainants, in this case, are proprietors of the machine called the saw gin. The use of which is to detach the short staple cotton from its seed.

“The defendant, in violation of their patent right, has constructed, and continues to use this machine; and the object of this suit is to obtain a perpetual injunction to prevent a continuance of this infraction of complainant's right.

“Defendant admits most of the facts in the bill set forth, but contends that the complainants are not entitled to the benefits of the act of Congress on this subject, because—

1st. The invention is not original.

2d. Is not useful.

3d. That the machine which he uses is materially different from their invention, in the application of an improvement, the invention of another person.

“The court will proceed to make a few remarks upon the several points as they have been presented to their view: whether the defendant was now at liberty to set up this defence whilst the patent right of complainants remains unrepealed, has not been made a question, and they will therefore not consider it.

“To support the originality of the invention, the complainants have produced a variety of depositions of witnesses, examined under commission, whose examination expressly proves the origin, progress and completion of the machine by Whitney, one of the co-partners. Persons who were made privy to its first discovery, testify to the several experiments which he made in their presence before he ventured to expose his invention to the scrutiny of the public eye. But it is not necessary to resort to such testimony to maintain this point. The jealousy of the artist to maintain that reputation which his ingenuity has justly acquired, has urged him to unnecessary pains on this subject. There are circumstances in the knowledge of all mankind which prove the originality of this invention more satisfactorily to the mind, than the direct testimony of a host of witnesses. The cotton plant furnished clothing to mankind before the age of Herodotus. The green seed is a species much more productive than the black, and by nature adapted to a much greater variety of climate. But by reason of the strong adherence of the fibre to the seed, without the aid of some more powerful machine for separating it, than any formerly known among us, the cultivation of it

would never have been made an object. The machine of which Mr. Whitney claims the invention, so facilitates the preparation of this species for use, that the cultivation of it has suddenly become an object of infinitely greater national importance than that of the other species ever can be. Is it then to be imagined that if this machine had been before discovered, the use of it would ever have been lost, or could have been confined to any tract or country left unexplored by commercial enterprise? but it is unnecessary to remark further upon this subject. A number of years have elapsed since Mr. Whitney took out his patent, and no one has produced or pretended to prove the existence of a machine of similar construction or use.

"2d. With regard to the utility of this discovery, the court would deem it a waste of time to dwell long upon this topic. Is there a man who hears us, who has not experienced its utility? the whole interior of the Southern States was languishing, and its inhabitants emigrating for want of some object to engage their attention, and employ their industry, when the invention of this machine at once opened views to them which set the whole country in active motion. From childhood to age it has presented to us a lucrative employment. Individuals who were depressed with poverty and sunk in idleness, have suddenly risen to wealth and respectability. Our debts have been paid off. Our capitals have increased, and our lands trebled themselves in value. We cannot express the weight of the obligation which the country owes to this invention. The extent of it cannot now be seen. Some faint presentiment may be formed from the reflection that cotton is rapidly supplanting wool, flax, silk, and even furs, in

manufactures, and may one day profitably supply the use of specie in our East India trade. Our sister States, also, participate in the benefits of this invention; for, besides affording the raw material for their manufacturers, the bulkness and quantity of the article afford a valuable employment for their shipping.

“3d. The third and last ground taken by defendant, appears to be that on which he mostly relies. In the specification, the teeth made use of are of strong wire inserted into the cylinder. A Mr. Holmes has cut teeth in plates of iron, and passed them over the cylinder. This is certainly a meritorious improvement in the mechanical process of constructing this machine. But at last what does it amount to, except a more convenient mode of making the same thing. Every characteristic of Mr. Whitney's machine is preserved. The cylinder, the iron tooth, the rotary motion of the tooth, the breast work and brush, and all the merit that this discovery can assume, is that of a more expeditious mode of attaching the tooth to the cylinder. After being attached, in operation and effect they are entirely the same. Mr. Whitney may not be at liberty to use Mr. Holmes' iron plate. But certainly Mr. Holmes' improvement does not destroy Mr. Whitney's patent right. Let the decree for a perpetual injunction be entered.”

Having thus given a history of the cotton gin, and the difficulties which beset the pathway of its inventor, during the time he was occupied in attempting to bring it into use, we will now proceed to examine some of the statistics of the cotton trade in order to ascertain the real value which this machine bears to this most important branch of American industry.

THE COTTON CROP GROWN IN

The year.	In the world. Millions lbs.	In the U. States. Millions lbs.	Capital invested in its production in the U. States.
1790.	490	2	\$3,500,000
1800.	520	48	80,000,000
1810.	555	80	134,000,000
1820.	630	180	300,000,000
1830.	820	385	650,000,000
1840.		790	1287,000,000
1847.		1,026	1731,000 000
1848.		1,066	
1849.		900	

From this table, which is based upon the statements of Mr. Woodbury and the Commissioner of Patents, it will be seen that up to the commencement of the present century, the cultivation of cotton was far from an important business in the United States, and we have already shown that the value of its culture depended exclusively on the success of some means by which the seed could be easily separated from the filaments of cotton. No sooner, therefore, was it ascertained that Whitney's gin could accomplish this end, than the whole Southern States turned their attention to its culture, which has gone on steadily increasing until the United States at the present day furnish the larger proportion of cotton consumed in the manufactories of the entire world. Previous to 1790, the United States furnished no cotton to the English manufacturers. During the last year the exports to England amounted to six hundred and ninety-six millions of pounds, of which six hundred and eighty-seven millions of pounds were of the upland growth, whose culture was immediately connected with Whitney's gin.

In England the amount of capital employed in the manufacture of cotton, is estimated to exceed £34,000,000. From

the census returns for 1840, we learn that the number of spindles in operation in the United States were 2,284,631, employing immediately 72,119 persons, having a capital of \$51,102,395, and annually producing fabrics valued at \$46,350,453.

These statistics demonstrate the immense value of the cotton interest to this country, not only as furnishing a staple which will readily be taken in exchange for the products of the world, but likewise as a means of employing thousands of individuals profitably in its manufacture. How much of the prosperity which has flowed in upon this country through the agency of its cotton trade, is due to the inventor of the cotton gin, can now hardly be estimated. No one will pretend to deny that without the exhibition of the mechanical genius of Arkwright, Hargreaves, Cartwright, and Watt, England would never have attained her present proud position as a manufacturing nation, and it may not be too much to say that if the genius which called forth the cotton gin had been permitted to slumber, our Southern States would at the present day have been engaged in the culture of rice and tobacco, and the world would have still looked to Brazil and the East Indies for cotton, as it now does to China for tea.*

Its inventor, however, early foresaw the slender chance of personal emolument from this source, and although he never ceased to prosecute it with untiring energy, yet with a prudence peculiar to the land of his birth, sought the means of increasing his gains, in an object which if not as beneficial at least proved more immediately lucrative. This was the manufacture of muskets for the government. He established

* Dr. Junius Smith, of South Carolina, has demonstrated the applicability of the United States to the culture of tea, which may yet be produced in sufficient quantities to supply the home demand.

his armory on a little stream whose banks were clothed with the most romantic scenery, about two miles from New Haven, in Connecticut. On this spot, now called Whitneyville, doubtless recommended to him by many of the associations of his college days, he erected his works, which have since served as a model for many of the more extensive manufacturing establishments of the country.

He had entered into a contract with the government in January, 1798, to supply it with ten thousand muskets, within two years. The government advanced five thousand dollars, to enable him to commence his works, and with the aid of several friends, he was enabled to obtain a loan of ten thousand more. The expenditures involved in the work so greatly exceeded his expectations, that the government found it necessary to make a further advance of fifteen thousand dollars, before they were in a condition to commence the manufacture of the arms, and the space of time allotted to the contract was extended from two to ten years.

He personally superintended the entire arrangements of his armory, and from the commonest tool to the most intricate piece of machinery, the whole establishment possessed a finish and applicability to the purposes for which it was intended, of which no manufactory of his day could boast. Professor Silliman, who had known him for upwards of a quarter of a century, says, "I was frequently led to observe that his ingenuity extended to every subject which demanded his attention; his arrangements even of common things, were marked by singular good taste, and a prevailing principle of order."

"The effect of this mental habit is very obvious in the dis-

position of the buildings, and the accommodation of his manufactory of arms,—although owing to the infirmities of his later years, and to other causes, his arrangements were never finished to the full extent of his views. The machinery has great neatness and finish, and in its operation, evinces a degree of precision and efficiency, which gratifies every curious and intelligent observer. I have many times visited the establishment with strangers and foreigners, who have gone away delighted with what they had seen."

The manufacture of arms proved a much greater source of immediate profit, than the masterly invention of the gin, and although he was, in after years the recipient of considerable sums of money from this source, yet he used frequently to say that all he had ever received from the cotton gin was no more than a remuneration for the immense outlays he had incurred, and the time he had devoted to the enterprise during the best years of his life.

Whitney was neither a selfish nor a solitary man, and from an early period in his life had looked forward to a suitable matrimonial alliance, as a source of unalloyed happiness. As early as 1797, in writing to his partner, (Miller,) he says: "I am now quite far enough advanced in life to think seriously of marrying. I have often looked forward to an alliance with an amiable and virtuous companion, as a source of happiness from whence I have expected one day to derive great happiness. But the accomplishment of my tour to Europe, and the acquisition of something which I can call my own, appears to be absolutely necessary, before it will be admissible for me even *to think* of family engagements." Under the influence of this extreme and laudable caution, he de-

ferred entering into matrimonial engagements until 1817; in the January of which year he married the youngest daughter of Judge Edwards, of the District Court of Connecticut, and a lineal descendant of Jonathan Edwards.

This union was crowned with all that happiness he had reason to anticipate from it. Fortunate in the selection of an amiable and intelligent partner, he was now enabled to indulge in the realization of those pleasing dreams with which he had always invested a life of domestic happiness.

Environed by the delightful and picturesque scenery in the midst of which he had made his home, and lulled by the quiet serenity of his domestic circle, the five succeeding years proved to be among the happiest of his life. In comfortable, if not affluent circumstances, with a reputation as extended as the culture and use of cotton, surrounded by a large circle of warm and confiding friends, and happy in his domestic relations, fortune seemed about to make him some compensation for the toil and perplexity of former years, but in the midst of so many elements of happiness, disease appeared to mar his pleasure, and proved to him the little reliance to be placed in all earthly enjoyment.

In the fall of 1822, immediately after his return from a visit to Washington, he observed the first indications of an enlargement of the prostate gland, which, after a lingering and painful illness, terminated in his death, on the 8th of January, 1825. During his illness he entered into that calm and critical examination of his disease which had characterized all his previous operations in life. He consulted the opinions of medical writers upon the subject, and noted

down such facts as applied to his individual case. He even requested his physicians to exhibit to him such anatomical illustrations as they possessed, which he examined with much care, and freely discussed with the medical attendants the chances for and against him, at the various stages of his disease, yet strange to say, with an apparent inconsistency we should have hardly expected to find in him, he directed that no autopsy of his body should be made after his decease.

His distinguished friend, Professor Silliman, who was a constant attendant upon him during his years of illness, observes :

“ During this period, embracing at intervals several years, he devised and caused to be constructed various instruments, for his own personal use, the minute description of which would not be appropriate in this place. Nothing that he ever invented, not even the cotton gin, discovered a more perfect comprehension of the difficulties to be surmounted, or evinced more efficient ingenuity, in the accomplishment of his object. Such was his resolution and perseverance, that from his sick chamber, he wrote both to London and Paris, for materials important to his plans, and he lived to receive the things he required, and to apply them in the way he intended. He was perfectly successful, so far as any mechanical means could afford relief or palliation ; but his terrible malady bore down his constitution, by repeated, and eventually by incessant inroads, upon the powers of life, which at last yielded to assaults which no human means could avert or sustain.”

His inventive genius, which was not confined to one great object, but left its impress upon every subject however trivial, which commanded his attention, was unequalled by any one of his age. It would be too much to say that his ability to

achieve any undertaking in mechanics was without limit, but it is very certain that he never was known to undertake a mechanical task in which he failed to succeed.

An individual of the particular class of genius to which Whitney belonged, might readily be excused for the exhibition of peculiarities which would have unfitted him in some degree for social intercourse, but he was superior to, and above all, such peculiarities. United to a large and commanding person, he combined manners polished by education, and a constant intercourse with the most refined society. He was generous and amiable in his disposition, and ever open to the appeals of humanity. He was fond of social intercourse, and on such occasions possessed a rare fund of conversational ability. To his friends he was warmly attached, and retained many from early youth, among whom were some of the most distinguished personages in the land. He lived and died respected for his private worth and his unostentatious benevolence. Useful in life, lamented in death, no more appropriate or lasting praise can be bestowed upon him, than that which is inscribed on his tomb, that he was in its first inception and practical application;

THE INVENTOR OF THE COTTON GIN.

D. Appleton & Co.'s Publications.

HISTORICAL AND BIOGRAPHICAL WORKS.

ARNOLD, (Dr.) Early History of Rome. 2 vols. 8vo.	\$5 00
ARNOLD, (Dr.) History of the Later Roman Commonwealth. 8vo.	2 50
ARNOLD, (Dr.) Lectures on Modern History, edited by Professor Reed. 12mo.	1 25
ARNOLD, (Dr.) Life and Correspondence, by the Rev. A. P. Stanley. 2d ed. 8vo.	2 00
BURNETT'S History of the Northwestern Territory. 8vo.	2 50
CARLYLE'S Life of Schiller. A new edition. 12mo.	75
COIT'S History of Puritanism. 12mo.	1 00
EVELYN'S Life of Mrs. Godolphin, edited by Bishop of Oxford. 12mo.	50
FROST, (Professor) History of the United States Navy. Plates. 12mo.	1 00
FROST, (Professor) History of the United States Army. Plates. 12mo.	1 00
FROST, (Professor) History of the Indians of North America. Plates. 12mo.	1 00
FROST, (Professor) History of the Colonies of America. 12mo. Illustrated	1 00
FROST, (Professor) Life of Gen. Zachary Taylor. 12mo. Illustrated.	1 25
GUIZOT'S History of Civilization in Europe, edited by Professor Henry. 12mo.	1 00
GUIZOT'S Complete History of Civilization, translated by Hazlett. 4 vols.	3 50
GUIZOT'S History of the English Revolution, 1640. 12mo.	1 25
GAYARRE'S Romance of the History of Louisiana. 12mo.	1 00
HULL, (General) Military and Civil Life. 8vo.	2 00
KING, (Colonel) History of the Argentine Republic. 12mo.	75
KOHLRAUS'S Complete History of Germany. 8vo.	1 50
MAHON'S (Lord) History of England, edited by Professor Reed. 2 vols., 8vo.	5 00
MICHELET'S History of France from the Earliest Period. 2 vols.	5 50
MICHELET'S History of the Roman Republic. 12mo.	90
MICHELET'S History of the People. 12mo.	63

MICHELET'S Life of Martin Luther. 12mo.	\$0 7
NAPOLEON, Life of, from the French of Laurent De L'Ardeche. 2 vols. 8vo. 500 cuts	4 00
O'CALLAGHAN'S Early History of New York. 2 vols. 8vo.	5 00
ROWAN'S History of the French Revolution. 18mo. 2 vols. in 1	63
SEWELL'S Child's History of Rome. 18mo.	50
SOUTHEY'S Life of Oliver Cromwell. 18mo.	38
SPRAGUE'S History of the Florida War. Map and Plates. 8vo.	2 50
STEVEN'S History of Georgia. vol. 1	2 50
TAYLOR'S Natural History of Society in the Barbarous and Civilized State. 2 vols. 12mo.	2 25
TAYLOR'S Manual of Ancient and Modern History. Edited by Professor Henry. 8vo.	2 50
TAYLOR'S Ancient History—Separate	1 25
TAYLOR'S Modern History—Separate	1 50
Used as a Text-book in several Colleges.	
TWISS. History of the Oregon Territory. 12mo.	75

LAW BOOKS.

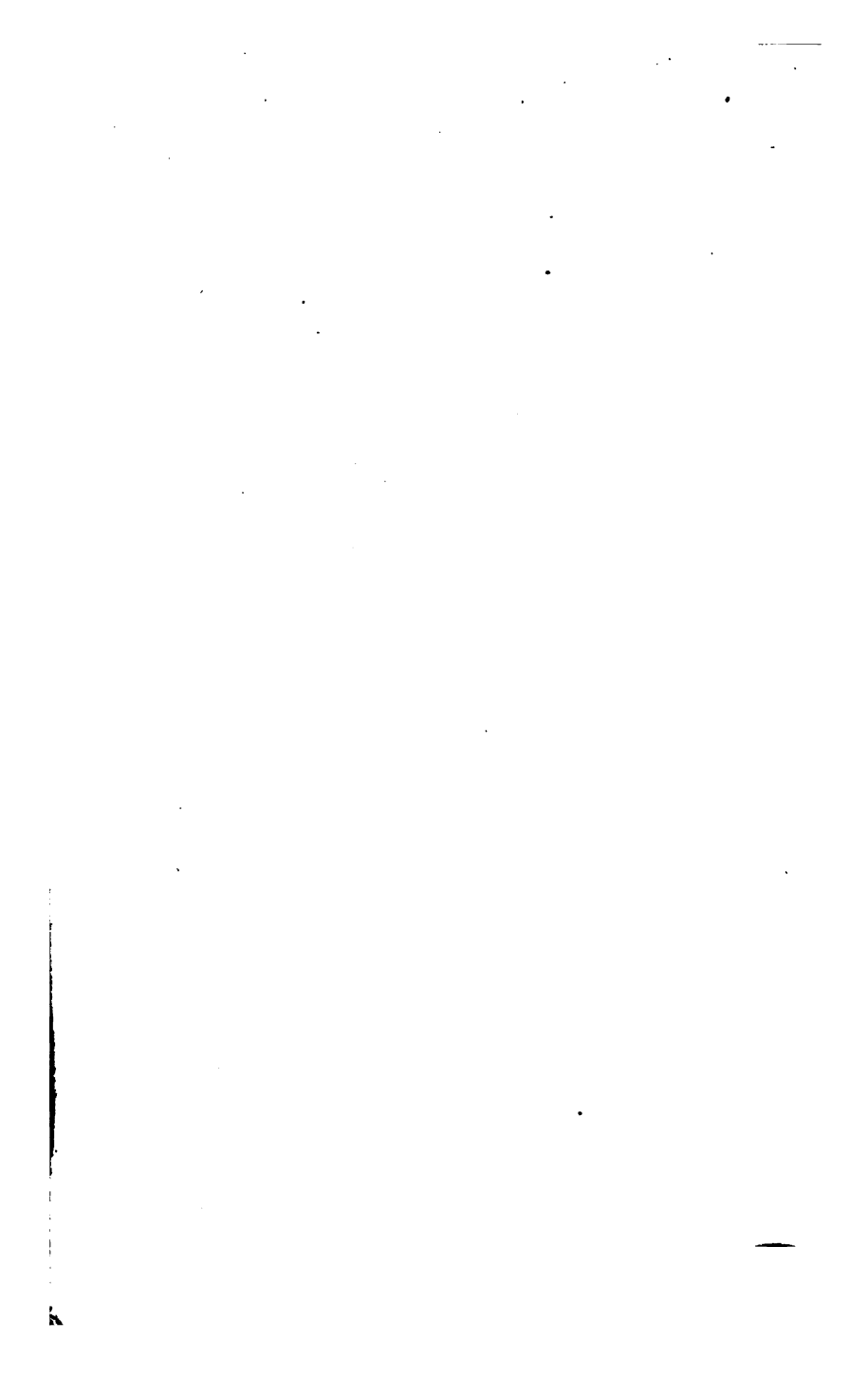
ANTHON'S Law Student ; or, Guides to the Study of the Law in its Principles.	
HOLCOMBE'S Digest of the Decisions of the Supreme Court of the U. S., from its Commencement to the present time. Large 8vo., law sheep	6 00
HOLCOMBE'S Supreme Court Leading Cases on Commercial Law. 8vo. law sheep	4 00
HOLCOMBE'S Law of Debtor and Creditor in the United States and Canada. 8vo.	3 50
SMITH'S Compendium of Mercantile Law. With Large American Additions, by Holcombe and Gholson. 8vo., law sheep	4 00
These volumes are highly commended by Justices Taney and Woodbury, Daniel Webster, Rufus Choate, and Chancellor Kent, &c.	
WARREN'S Popular and Practical Introduction to Law Studies With American additions, by Thomas W. Clerke. 8vo., law sheep	2 50

D. Appleton & Co.'s Publications.

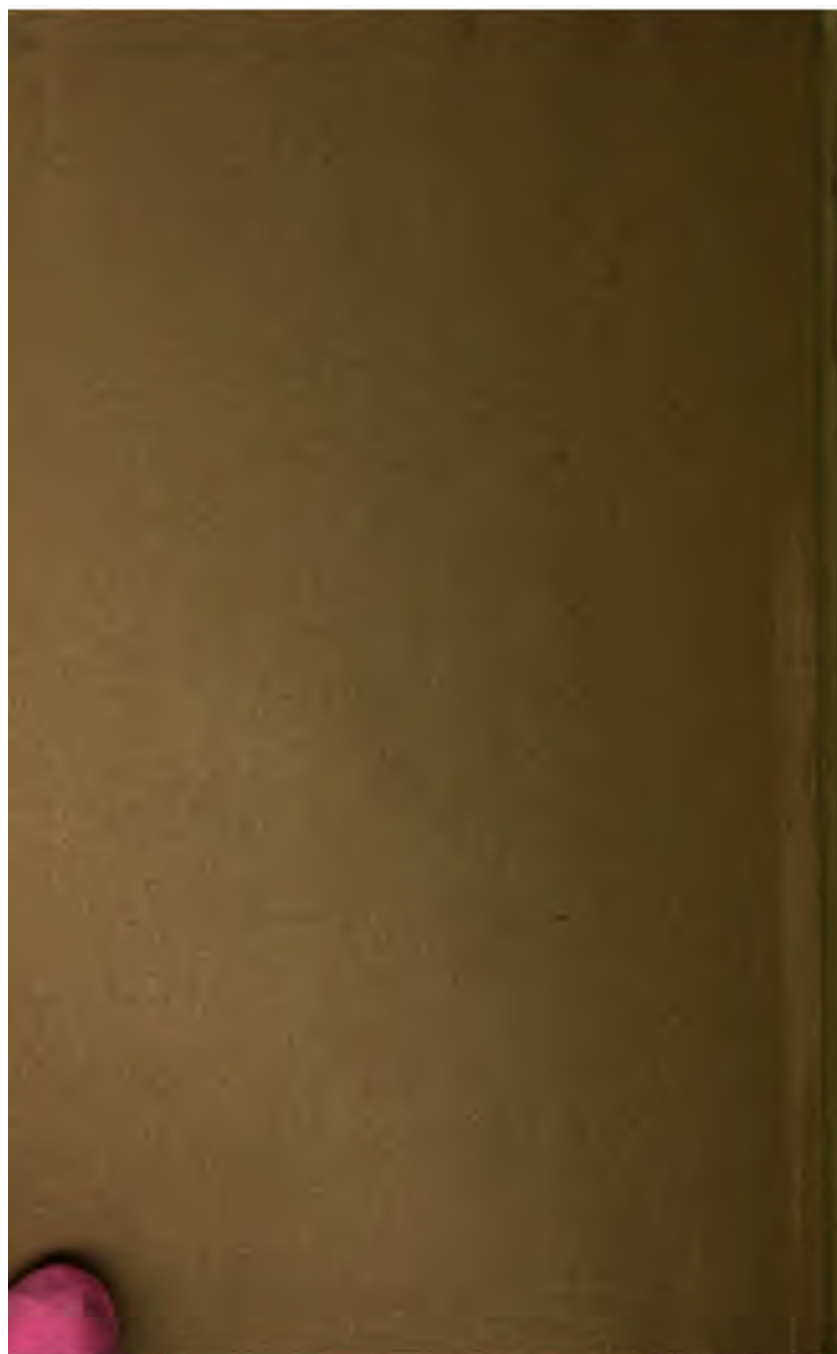
MISCELLANEOUS.

ACTON, or the Circle of Life. \$1 25	SOMETHING FOR EVERY BODY. By Robert Carlton. 12mo. 75
AGNELL'S Book of Chess. A Complete Guide to the Game. Steel Illustrations. 12mo. 1 50	SOUTHGATE (Bishop). Visit to Syrian Church. 1 00
APPLETONS' Library Manual; a valuable book of reference for the book buyer and seller. 500 pp., 8vo., paper cover, \$1; half roan 1 25	TUCKERMAN'S American Artist Life. 75
APPLETONS' New and Complete United States Traveller's Guide, including the Canadas, &c. Nearly 50 Maps. 16mo. 1 25	WANDERINGS in the Western World; or, the European in America. 75
APPLETONS' Southern & Western Guide, with Maps of the Routes and Plans of the Principal Cities. 16mo. 1 00	WAYLAND'S Real Life in England. 38
APPLETONS' Northern and Eastern Traveller's Guide, with 30 Maps of Routes, Plans of Cities, &c. 16mo. 1 25	WHIPPLE'S Essays and Reviews. 2 vols. 12mo. 2 25
ARNOLD'S Miscellaneous Works 2 00	WARNER'S Rudimental Lessons in Music. 18mo. .
BALLET GIRL, The Natural History of. By Albert Smith. With Illustrations. 18mo. 25	Primary Note Reader .
BLANCHARD'S Heads and Tales of Travellers. 18mo. 25	WOMAN'S WORTH; or Hints to Raise the Female Character. By a Lady. 18mo. 38
CHAPMAN'S Instructions on the Use of the American Rifle 1 25	SCIENCE AND USEFUL ARTS.
DELEUZE'S Treatise on Animal Magnetism 1 00	ANSTED'S Gold Seeker's Manual. 12mo. 25
ELLIS'S Mothers, Daughters, and Women of England. Each 50	ARNOT'S Gothic Architecture, applied to Modern Residences. Paris, each 25
FROST (Professor). Book of Good Examples. 12mo. Illustrated 1 00	BOURNE'S Catechism of the Steam Engine. 18mo. 75
FROST. Book of Anecdotes. 12mo. Illustrated 1 00	BOUSSANGAULT'S Rural Economy 1 50
FROST. Book of Illustrious Mechanics. 12mo. Illustrated 1 00	BYRNE'S New Method of Calculating Logarithms. 16mo. 1 00
GENT, (The Natural History of). By Albert Smith. Illustrated 25	Dictionary of Machine, Mechanic Engine Work. Publishing. In numbers, each 25
GRANT'S Memoirs of an American Lady. 12mo 75	COOLEY'S Cyclopædia of 6000 Practical Receipts, in all branches of Arts, Manufactures, and Trades 2 25
GUIZOT'S Democracy in France 25	FALKNER'S Farmer's Manual. 50
HOBSON. My Uncle Hobson & I. KIP'S Christmas Holidays in Rome. 12mo. 1 00	FARMER'S TREASURE. (The) A Manual of Agriculture 75
LAMB'S Final Memorials. Edited by Talfourd. 12mo. 75	FRESENIUS' Qualitative Chemical Analysis 1 00
ANMAN'S Summer in the Wilderness. 12mo. 63	HODGE on the Steam Engine. 48 plates 10 00
EGER'S History of Animal Magnetism. 12mo. 1 25	HALLECK'S Elements of Military Art and Science. Illus. 1 50
POWELL'S Living Authors of England. 12mo. 1 00	LEFEVRE'S Beauties of Modern Architecture. 48 Plates 6 00
REPUBLIC of the United States. Its Duties, &c. 12mo. 75	MARSHALL'S Farmer's Hand Book 1 00
ROGET'S Economic Chess Board Companion, in Case \$ 50	MILES on the Horse's Foot 25
SAWYER'S Plea for Amusement 50	PARNELL'S Chemistry applied to the Arts 1 00
SELCOT Italian Comedies. 12mo 1 00	STEWART'S Stable Economy 1 00
	THOMSON on the Food of Animals and Man 50
	URE'S Dictionary of Arts and Sciences, with Supplement. New edition. 1 vol. 5 00
	WILSON on Healthy Skin. Illus. 1 00

AR







JAN 2 - 1934

